

COMMERCIAL CAR JOURNAL

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COMMERCIAL CAR JOURNAL
MARCH, 1937

HANSEN

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HARDWARE

Sliding Doors

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Ask for Catalog

KEEPS THEM ON THE

ON THE ROAD is the one place where the vehicles in your fleet can make you a profit.

You can keep them on the road, and increase the mileage between overhauls, by switching over to more suitable engine oil . . . New Texaco Motor Oil.

This new oil is made by Texaco's new refining method . . . the Furfural Process.

In refining, the furfural passes down through the oil, extracting the tar, gum, sludge forming elements. Then, the furfural itself is removed. Result . . . oil that is *all* lubricant, oil with a stronger film, a film that stands up longer in the heat of hard, continuous service.

Operators everywhere are using New Texaco Motor Oil, and its companion product—

TEXACO FIRE-CHIEF GASOLINE. The lightning action of *Fire-Chief* assures quick starts, flashing speed, full power at all times.

A Texaco representative will gladly provide practical engineering service to prove the economies of Texaco Products.

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*Nation-wide distribution facilities
assure prompt delivery*



*Four out of five of the winners
of the 1936 Bus Maintenance
Awards are users of Texaco
Automotive Products.*

TEXACO

COMMERCIAL CAR JOURNAL
MARCH, 1937

THE Overload



COMMERCIAL CAR JOURNAL

Vol. LIII.

No. 1

MARCH, 1937

Through Snow and Ice

WHEN Consolidated Motor Lines sent out a publicity yarn dealing with its safety set-up we decided that while the yarn was interesting, it did not tell all. So by rail and bus, over snow and ice (this was back in the winter of Dec. 1 to 9) a staff man went from terminal to terminal getting ideas. In collecting safety dope he noticed that Consolidated had a very efficient dispatching system. So he persuaded President Everitt J. Arbour to give the details in an article which you will read in this issue under the title "By Wire." The safety article will appear in May.

Ditto (Judging by the News)

OUR Hollywood representative worked fast this month. Learning that Universal Pictures was shooting a film dealing with motor trucking he queried to know if we were interested. We were and three days later story and pictures arrived by air-mail traveling high over the flooded Ohio Valley, and were rushed into print. "Hollywood Stars Trucks" we titled it and you'll find it an interesting bit of fiction. Truckers and muckers fight it out and in the end love—and trucks—triumph.

To Groove or Not to Groove

THE symposium on "Regrooving" of tires has been three months in the



This tractor-trailer goes alogging piggy-back style. On the return trip the trailer climbs down and totes 60,000 lb. of logs (6000 to 7000 ft.) The Kenworth tractor has a dual axle drive. Davis & White has a fleet of these in Washington

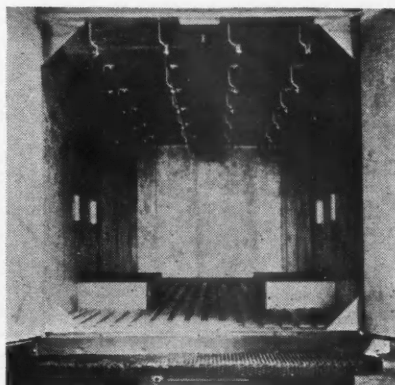
making. The subject is particularly live at the moment because of the tendency among certain state regulating agencies to insist that regulated carriers operate on tires that are never without a tread. Read the article and make up your own mind.

Hints and Etcetera

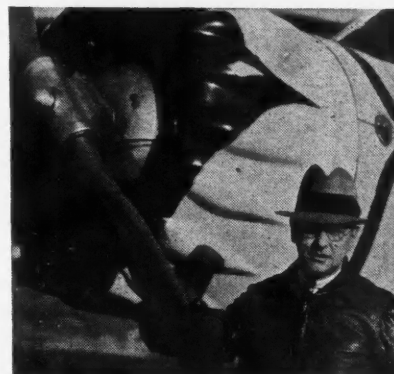
SHOP Hint entries slowed up a little last month but we got enough to fill two pages. The offer of \$5 per hint accepted still stands. Come one, come all. Readers interested in shop hints will also be interested in Part 2 of the "Good Steers on Steering Gear Adjustment" series which covers Gemmer gears. Several other articles and a batch of new product descriptions round out what we hope will be received by you as another profitable issue.

Flash!

NEXT month watch out for a special—the first of its kind—the "Fleet Operators' Reference Annual"—a handbook that no fleet operator will want to be without.



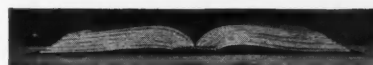
Meat is literally railroaded into this body (6 tons of it in 10 minutes) by means of a track suspended from the roof that connects with a track in the packing plant of Leo Schloss, Inc., Newark, N. J. Dry-Zero insulation maintains a 40-deg. temperature in the Merz body on a Federal chassis



When Frank M. Bender, general manager of the White Motor Co., says he'll be on the spot in a few hours, he's not fooling! Holder of a transport pilot's license, he is the only truck executive in the country who owns and operates a private plane for business purposes. The Lycoming-engined plane has a cruising speed of 130 m.p.h.



This Ford tractor and Fruehauf trailer toted a 12,120 lb. payload between Baltimore, Md., and Johnstown, Pa., 180 miles, in 8 hr. 45 min. Then just to keep fit the trip was made again with a 16,239 lb. payload in 10 hr. 37 min. Five test runs up and down 12 per cent grades sold Ankeny on tractor-trailers



We know many of our readers keep a file of Commercial Car Journal's issues. They will be interested to know that a special CCJ binder to hold 12 copies has been designed by The Gilmer Binder, 228 Chancellor St., Philadelphia, Pa., and is available at the special price of \$2. It binds without cutting or punching and opens flat. We've got one and it's swell. Please place your order direct



A Hercules diesel engine nestles under the hood of this 2½-ton Diamond T equipped with a third axle. Joe Bos, the operator, is especially pleased with the 9 miles per gal. which he gets with a 10-ton payload

"Railroaded" Propaganda

ALONG with all their other publicity efforts devised to embarrass the trucking industry it now develops that the railroads were responsible for those twin pieces of propaganda "Too Long at the Wheel" and "How Long on the Highway?" At the I.C.C. hearing on hours of service an employe of the National Safety Council testified—unwillingly, we assume, because he had to be subpoenaed by the I.C.C.—that the Council, which sponsored the publications, defrayed their expense out of a special fund contributed by the railroads.

This revelation explains a lot of things that have troubled many in the industry who have had a high regard for the National Safety Council and respected its aims. It explains, for one thing, the reckless stretching of meagre data to fit a pattern of unfair propaganda pleasing only to the railroads and consciences similarly warped. It explains the distortion of facts, the exaggeration of hearsay, the ridiculous generalizations and the opinionated conclusions.

Results Unfairly Handled

When the publications appeared no one disputed the Council's making an inquiry into the relationship of driver fatigue to accidents. It was a logical function. But the entire automotive industry deplored the handling of the results which were so woefully meagre that any fair-minded statistician would have tossed them aside as inconclusive and unworthy of serious consideration, let alone widespread publication. The handling now stands revealed as all the more deplorable because the railroad tie-up makes the Council suspect of gross partisanship.

In fairness to the Council we doubt that any partisanship was intended. Charitably we conclude there was a carbon-monoxide leak or mental fatigue somewhere in Council headquarters. Someone listened too long to the railroads.

This Long on the Highway

THE Interstate Commerce Commission has completed its hearings on hours of service of truck and bus drivers. The inquiry was the largest of its kind ever made. Hearings were held in eight key cities and more than 200 witnesses took 23 days to put testimony into a record that totals thousands of pages.

What will the I.C.C. decide? Speculation may be futile but it's a pleasant pastime. Having little respect for our neck in a circumstance such as this, we stick it out unhesitatingly. Our guess is that the truck industry will be allowed a maximum week of 60 hours with flexibility in daily hours, punctuated by compulsory periods of rest. Drivers will have to keep simple trip sheets. Further, that despite the hope of organized labor, shop mechanics will not be included in the regulations. Knowing the Motor Carrier Bureau's reputation for fairness and thoroughness we also guess that before final adoption the regulations will first be issued as proposals subject to criticism and comment.

A Few Impressions

Our attendance at several of the hearings left a few impressions, notably that organized labor handled its case sophomorically; that the truck and bus industries furnished convincing evidence that only a very small percentage of accidents can be ascribed to long

hours at the wheel; that most accidents, for some unexplainable reason, occur during the first few hours a driver is on duty; and that I.C.C. Examiner Snow was the personification of fairness in his conduct of the hearings.

Uniformity Gains Ground

WHEN the Federal Motor Carrier Act was passed the industry generally expressed the hope that one beneficial result would be a national trend toward uniform regulations conforming with those adopted by the I.C.C. Confidential information indicates that hope is being realized.

We understand that at least half the states of the Union at this very moment are working out ways and means to effect conformity with the safety regulations recently formulated for interstate carriers. The regulations are fair and private carriers will not find them burdensome when applied to intrastate operations.

A Jury Warning

"SAFETY Begins in the Shop" is a motto that wise fleet operators subscribe to without reservations. The equipment must be safe if the driver is to be held responsible for what happens out on the road.

To those operators whose maintenance practice is slipshod there is a warning in the action of a New York jury. The case was that of a driver for a roofer. The driver while out alone with the roofer's truck killed a woman. The driver and a former employe testified at the trial that the roofer knew and had admitted the brakes were defective and needed repair. The roofer claimed that on the day of the accident he had instructed the driver not to operate the truck.

The jury returned a verdict holding both the employer and employe guilty of second-degree manslaughter. Culpable negligence convicted both.

Lone Star Twinkle

ARE we to conclude that there is still hope for fair treatment of motor trucks in the Independent Republic of Texas? We understand that for the first time a bill to liberalize size and weight restrictions has been voted out of committee favorably—and unanimously, at that. The bill conforms to the recommendations in the Joint Rail-Highway-User Agreement of 1933. However, railroads have shown by their conduct that their word of honor is about as fragile as that of certain European countries; therefore the railroad interests of Texas should not be counted on to stand by the agreement. The Lone Star twinkle may be merely a wink.

After Hours

EDITORIAL COMMENT

By GEORGE T. HOOK, Editor

Cars

TO THE GROUND



Emir C. Henthorn, of Buckner, Mo., contributes his bit to safety on the highway. Rear lights on his trailer are respectively red and green. The first has "NO" written on it and the other has "OK." Driver Henthorn works them and advises motorists whether or not it is safe to pass him. He also slogans a bit of advice at speeding motorists, as you can see

Rural Ruckus

This department has been a faithful news agency for some time reporting fearlessly and without favor such information as it was able to gather. This month we step out of character in the first paragraph and make a curtain talk in the form of a suggestion. Since our agent who receives his mail at a RFD address reports that mid-west farmers have equipped their tractors with radios so that they can keep in touch with market reports while ploughing with the intent to run for their trucks, load up and race for the market on favorable news, it is logical to assume that the trucks should be radio equipped for the same reason. What truck salesman will find it easier to argue with us than to sell a radio-equipped truck?

Allied Axle

From a source that heretofore has been identified only with driving third axles comes something that sounds like news. If our report is accurate and we believe

that it is, a new heavy-duty trailing axle should be at the business of trailing with a load on its back in the very near future. Up to press time no details have rewarded our diligent efforts.

Governor Gyration

A new idea in governors has come out of the North country and one of our usually reliable agents informs us that it has interested one of the better known governor manufacturers even to the point of investing money in it. The governor works from the speedometer and controls a colored light system on the front and back of the vehicle so that the color of the external light showing indicates the speed range that the car is being operated in. There are three ranges and it is impossible to drive in the next higher or lower range without setting the governor for that range with an instrument board key. Since the point of restriction is the speedometer there is no power loss in intermediate gears.

Literary Lecture

Just because we obviously spend so much time with things mechanical don't assume we do not keep up with its reading. To prove that our literary efforts keep apace we now tell you that the new SAE handbook in the section devoted to light standards will say that flashing lights must be reserved for directional signals. Where the directional light is not in the driver's vision use an audible signal.

Specie of Speculation

Just as an outside guess this department tells you that another passenger car company may try its hand at trucks. Word comes to us that they have been showing a keen interest in CCJ lately and insiders have it that they are about to do some contract manufacturing that comes extremely close to truck building.

FREE OFFERS

☐ A—An article which approaches safety from an unusual angle has been reprinted by the Electric Storage Battery Co. and copies are available to responsible concerns wishing to distribute them to truck drivers and other employees. If you qualify as a responsible concern check this, say how many, and fill in address below.

☐ B—All available literature on Re-grooving Equipment.

Name

Title

Firm Name

Address

City

No. Trucks No. Cars

(Mail to The Editor, Commercial Car Journal, Philadelphia, Pa.)



A novel bit of lighting—and advertising—of Craig Coal is accomplished by Craig, of Wayne Junction, Pa., by means of an illuminated bank of 21 c.p. six-volt lamps mounted in a horizontal reflector attached to the body of the truck. On small tank trucks current is supplied by an extra Exide battery and generator while standard batteries handle the lighting on larger trucks. Extra generators are belt driven from pulleys on the standard generator equipment, the shafts of which were extended for this purpose. Extra batteries were installed in the hose compartments of the skirts. No. 8 stranded wire was used for the wiring

ALL fleetmen's trucks must have shoes—with safe soles on them.

Or nearly all, anyway. That's the order of a number of states and others are expected to follow suit. Indicative of the trend is the order of the Public Service Commission of Pennsylvania which requires all trucks performing a public service to have a tread pattern on their tires. Connecticut requires that tread be showing on all tires on vehicles up for inspection. Some other states now having similar laws are Tire regrooving is the order of the day if operator's are not to be caught flat-footed, or bald-headed, as the tires may be.

A good little tire and a good big tire may both still be good after the original tread pattern has worn off by cutting a new pattern on them. By good is meant safe, for fleetmen agree that regrooving revives the anti-skid resistance of bald tires, and that by regrooving the safe tire mileage is increased by as much as 10,000 miles, depending on the operation, of course.

FLEETMEN have kind words to say about regrooving and own up to it as a general practice. Typical of shop practice is that of the Philadelphia branch of Armour & Co. where fleetman Reeves presides.

Regroove?

"And how," says fleetman Reeves. And so while the camera clicked off the process while on location in the Armour garage with a bald tire in the star role, we clucked and made a record of the facts. In this shop tires are regrooved if the condition of the carcass warrants it. Tires on city operated trucks roll up a total of 20,000 to 25,000 miles before the tread thins out and they go

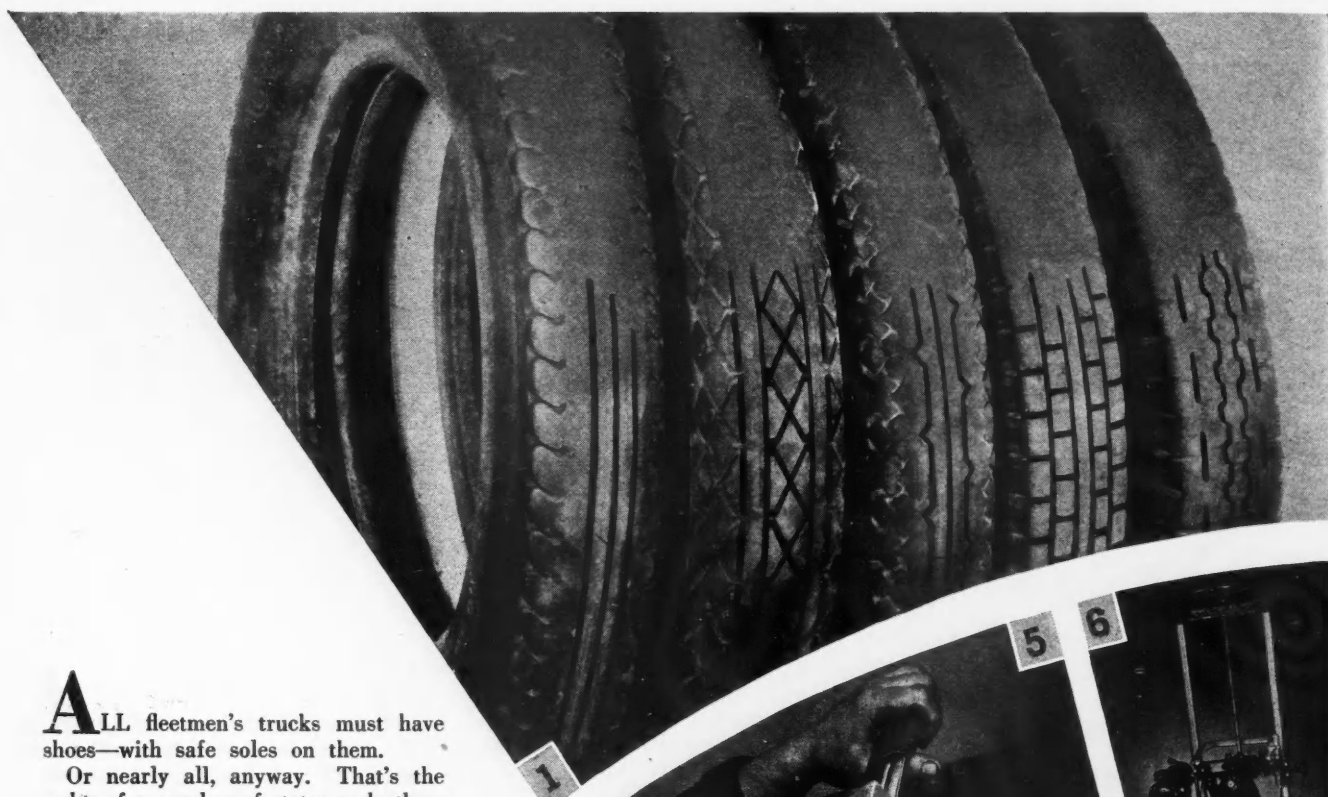
bald. Tires mounted on trucks operating out of town roll up 50,000 miles before running on the bald spot. At such periods regrooving becomes an automatic procedure and is not infrequently brought to a head by the drivers themselves who complain of slipping wheels and skidding on wet streets.

After regrooving, Armour benefits from an additional 6000 to 10,000 miles of safe tire life. Witness the illustration of the tire with the regrooved tread worn but still visible. This tire was regrooved after it had gone 22,359

miles. Now you see it with 10,000 additional miles. Those were safe miles, and the tire is only now beginning to go bald again. If the side walls and fabric are still good, it will be re-treaded, according to fleetman Reeves.

So in the Armour shop there is no question but that regrooving tires gives additional safe miles—something which the drivers themselves demand—and it didn't take any Public Service Commission to make such a practice compulsory for safety's sake in this shop. This shop uses a diamond pattern. It

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THE GROOVE "LIFE AGE"*

BY STANLEY GERSTIN



Illustrations (1 & 2) show some regrooving patterns used by various fleets when tires go bald. Regrooving equipment shown is that of (3) Kwick-Kut; (4) Allied's "Champion"; (5) E. E. Stackhouse; (6) Bendix; (7) Vulcan; (8) Safe Tool

For additional information on regrooving equipment check "B" in the "Free Offers" on page 19

offers good suction and little smooth or skidding surface. Grooves are cut from $\frac{1}{8}$ to $\frac{1}{4}$ in. deep, depending, of course, on the amount of rubber between the tire fabric and the bottom of the original tread.

TIRES are taken off the wheels to be regrooved and the actual process takes very little time, depending on the dexterity and experience of the operator. Anyone can do it. In order of procedure: all foreign elements picked up by the tire are removed. The pattern is then chalked on simply by drawing criss-crossed lines equally spaced about
(TURN TO PAGE 70, PLEASE)

TO SAFE TIRE
IS

Regrooving

***"Lifeage" Equals Safe Mileage for the
Life of the Tire. Fleetmen Testify Addi-
tional Safe Mileage Averages 10,000 Miles**

HANDLING 14 MILLION POUNDS OF FREIGHT WEEKLY



By Wire

SOMETIME ago those of us who are responsible for seeing that the Consolidated Motor Lines goes about its daily chore of moving people's goods from where it is to where they want it to be, decided that we had to know more about the daily operation of the company if we were to continue to be responsible for it. With the company growing it was becoming next to impossible to know what was going on in a detailed way with any informal system or lack of system, despite the fact that we number among our administrative personnel several of those human sponges who never seem to reach the saturation point in absorbing and remembering information.

With 14 terminals from Boston to Newark and 300 trucks running around and between these terminals the details of the business bulked large. So we took the job before it got out of hand

Eight Consolidated Terminals Tune In On Dispatcher Who Plays a Game of Chess Over Leased Wires to Keep Trucks Moving With Full Loads and Who Spots Any Truck Anywhere in 20 Minutes

and arranged it so that it could be directed from our headquarters in Hartford, Conn. First we had to make sure that those in authority in Hartford would have some means of knowing all about that portion of the operation that interested them and have the knowledge promptly enough so that they could act upon it. We have found that keeping out of trouble consists largely of knowing where trouble is starting or where it is apt to start.

To keep ourselves informed we have telephone wires leased 24 hours a day between all of our main terminals and

the headquarters at Hartford. All one has to do to get any of these terminals or Hartford is pick up the receiver and give the code ring from the terminal switchboard, Boston, Worcester, Springfield, Hartford, New Britain, New Haven, Bridgeport and New York and listen singly or all together to what you have to say and then they can talk to each other after you have hung up, so it pays to be right when you say something. Boston answers for Providence, which is off the main line, and Springfield acts for Pittsfield, Mass., while Bridgeport keeps in communica-

No. 1																				
Truck No.	From	To	Weight Out	Time Out	Dropped Off	Picked Up	Time In	Time Out	Final Weight Dest.	Time In	Time In	Time Out	Final Weight Dest.	Time In	Time In	Time Out	Final Weight Dest.	Time In	Time In	
82	Hrd	N.Y.	13,328	9:28	XXX	XXX	Bt 12:28	12:28	13,328	4:55	2:53 6:14	3:15 6:14	16,145	5:12	3:12	17,216	1:20 4:37	1:20 5:03	19,557	
298-793	Hrd	N.Y.	14,154	10:03	XXX	WB 1,828 NH 4,012	WB 10:38 NH 12:30 Bt 2:13	11:03 1:00 2:13	19,994	6:49	4:59	5:28	24,530	6:22	6:22	16,132	12:44 5:03	1:09 5:03	12,031	
Cha-delv and Davis-Roberts																				
273-720	Hrd	N.Y.	14,073	10:08	XXX	XXX	Bt 1:13	1:13	14,073	11:22 3:06	11:37 3:46	16,806	2:07 2:27	12:37 3:52	14,187	2:06	2:06	15,716		
Misc and Conboy																				
287-780	N.S.	N.Y.	22,023	10:25	XXX	XXX	Bt 1:04	1:04	22,023	4:52	10:51 3:10	11:01 3:10	17,612	4:48	5:34	5,687	2:23 5:36	2:23 5:36	20,635	
247-770	N.S.	N.Y.	20,351	10:40	XXX	XXX	Bt 1:30	2:35	20,351	5:46	11:24 3:04	11:49 3:04	14,014	2:38	3:24	14,030	4:16	4:16	16,946	
273-7108	N.H.	N.Y.	19,401	12:15	XXX	XXX	Bt 1:30	1:30	19,401	4:53	2:23	2:23	20,955	6:59	10:04 12:34	10:35 12:34	not thru at 8:00			
252-750	N.H.	N.Y.	12,610	1:30	XXX	XXX	Bt 2:46	2:46	12,610	5:31	6:18	6:18	16,362	10:39	10:44	10,862	1:22	1:22	22,061	
210-783	N.H.	N.Y.	11,434	3:25	XXX	XXX	Bt 4:20	4:20	11,434	2:53	2:53	2:53	20,983	2:01	2:01	22,679	10:59 12:09	11:39 12:45	16,698	6:11
232-745	Bpt	N.Y.	20,457	12:51	XXX	XXX	XXX	XXX	20,457	4:53	3:42	6:38	19,140	5:49	5:49	10,350	4:11	4:11	18,797	
Pyramid																				
471	Pitts	N.Y.	16,254	9:00	Bt 5,353	XXX	Bt 2:00	4:48	9,891	XXX	XXX	XXX	17,588	4:27	4:27	20,935	springe	XXX	14,061	7:00
to 7:18 at North																				
435	N.Y.	12,749	1:45	XXX	XXX	XXX	XXX	12,749	5:36	1:52	1:52	14,452	3:32	3:32	20,803	2:50	2:50	22,312	7:15	
435	Bt 3,234	Bt 5,838	Bt 12:07	2:04	19,747	6:49	XXX	XXX	12,071	12:44 3:23	1:45 4:23	25,329	XXX	XXX	20,740	6:16	XXX	XXX	23,908	
XXX	XXX	XXX	Sp 10:08 Bt 3:12	10:09 3:12	15,002	6:14	10:30 5:03	11:37 3:03	22,044	XXX	XXX	15,797	XXX	XXX	23,690					
XXX	XXX	XXX	18,337																	
December 1, 1936										Date December 1, 1936										
December 1, 1936																				



Above—Chief dispatcher's report forms showing daily movement of freight by Consolidated. Hector Dery (with ear phones) is the C.P. who fills them in

tion with Waterbury, Conn., and reports for them, and New York keeps us informed on Newark, N. J.

ALL night long these wires are used for truck dispatching and this brings us to the one exception to our central-

ized authority at Hartford. Springfield, Mass., because of its location, is better for dispatching and at that terminal Hector Dery, chief dispatcher, orders the movements of trucks during the day and Henry Jenak assumes responsibility for the truck movements at night.

As soon as the night dispatcher gets to his desk all the terminals get on the wire and one at a time they tell the night dispatcher what they have in the way of solid loads and what they will have left on the platform after their solid loads have been made up. He also finds out what they have in the line of trucks. Jenak knows from the start that he will have 55 regular scheduled runs which will be ready to start at a scheduled time. These are called the regulars and these runs are given to the drivers oldest in point of service. Then there are the "gypsies" who must go where the freight takes them. The "gypsies" take care of the freight when the movement is abnormally heavy between two points, and they handle the split loads. All over-the-road trucks start at night. Some time between 1 A.M. and 2 A.M. About 120 trucks are in motion between terminals.

When some terminal manager reports that he has freight of a peculiar size or bulk on his platform the dis-

1 & 1A. High Capacity Generator

By R. F. HARDIN

Kansas City, Mo.

AFTER having all of the usual troubles due to overloaded electrical systems I have worked out an installation that seems perfect for our needs. It is foolproof and fully automatic.

Most trucks have ample space for mounting a larger generator so I obtained an old 12-volt generator such as that used on buses and made a bracket so that the generator would fit in the same place as the original generator. The fields of the 12-volt generator were rewound with about one half as many turns as there were for the 12-volt system and the wires used were about twice as heavy. No change was made in the armature. The field winding was not grounded but was attached to an insulated post on which a wire was fastened and extended to the dash.

The original light switch was replaced with a 1935 Chevrolet light switch which has a post for the field wire. This switch is equipped with a resistance unit and in operation it places the field winding in series with this resistance when the lights are off. This chokes the generator output. When the lights are on this resistance is omitted from the circuit and the field is grounded within the switch which of course steps up the charging rate. These resistances can be obtained with almost any amount of resistance so it is easy to balance the output to the load. Once it is installed it requires no further attention. The generator is the third brush controlled type which has proved very successful when there is not too much difference in the charging rate to the battery with the lights off or on.

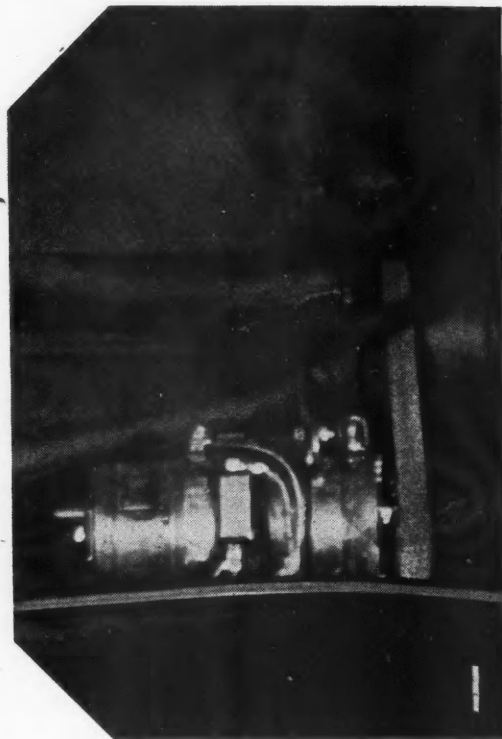
In our case I have balanced the field resistance so that the charging rate is the same with the lights off or on. A 15-ampere rate seems about right for our requirements. The third brush can be adjusted to any rate you desire and you can eliminate trouble with dry batteries. This kind of generator has a large bearing which I believe will last as long as the truck if the brushes are replaced occasionally.

My electrical repair man supplied

this generator and furnished it rewound complete with cut-out and pulley for \$15. It took me about two hours to build the bracket and install the switch. The equipment has not been touched since the day it was installed. The generators can be had from any

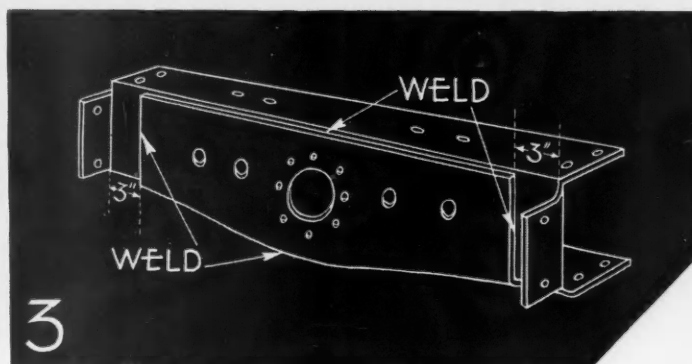
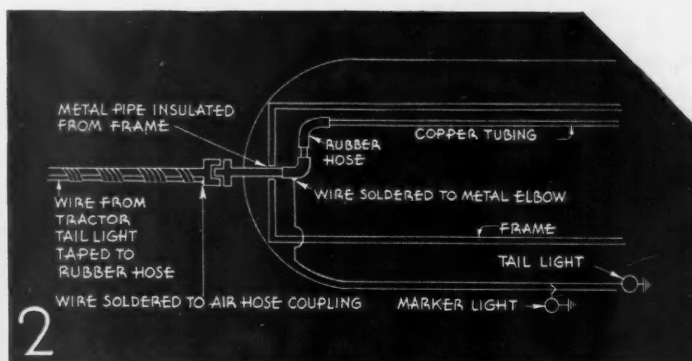
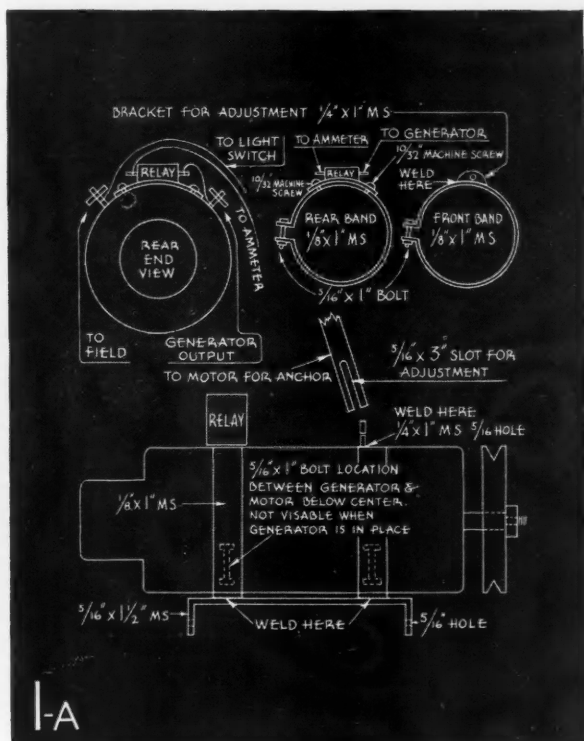
wrecking company and any good electrical house will do the winding. The old Dodge 12-volt generator works very well in this kind of an installation. It seems to stand a load of 30 to 40 amperes at six volts with ease.

The hook-up makes no changes in



Shop Hints

FROM FLEET SHOPS



the wiring system with the exception of the addition of one wire from the generator to the light switch. If the battery cable should come loose or anything should happen to open the charging circuit while under full load the resistance will burn out before the field winding and the generator is protected. The resistance can be replaced in a few minutes for a few cents.

2. Trailer Electrical Coupling

By A. R. MATTSON

Maintenance Foreman, Rapid Storage and Transfer Co., Portland, Ore.

WE have two trailers for each tractor in our fleet so consequently we do a great deal of switching. This resulted in a lot of trouble with the elec-

Illustrations are of (1&1A) High Capacity Generator, by R. F. Hardin; (2) Trailer Electrical Coupling, by A. R. Mattson; (3) Double-Strength Cross-Member, by J. J. Beauchamp; (4) Diesel Fuel Strainer, by W. Totzek; (5) Wet Ignition Eliminated, by C. B. Grimes (not illustrated)

trical connections between the semi-trailers and the tractors. To solve the problem I worked out this hook-up and it seems to work very well and one motion connects both the booster brakes and the lights.

A wire was run from the tail-light circuit of the tractor along the hose to the trailer and was taped to this hose. The wire was connected to the metal coupling on the end of the hose. Then the metal connection on the trailer was insulated from the frame by slipping a length of rubber hose over it. The booster line was insulated from the booster unit by installing a length of rubber hose in the line just back of a metal elbow. The trailer marker and light line was connected to the insulated booster line at this point. The ground is completed by grounding the trailer lights to the trailer frame which is grounded to the tractor through the fifth wheel.

3. Double Strength Cross-Member

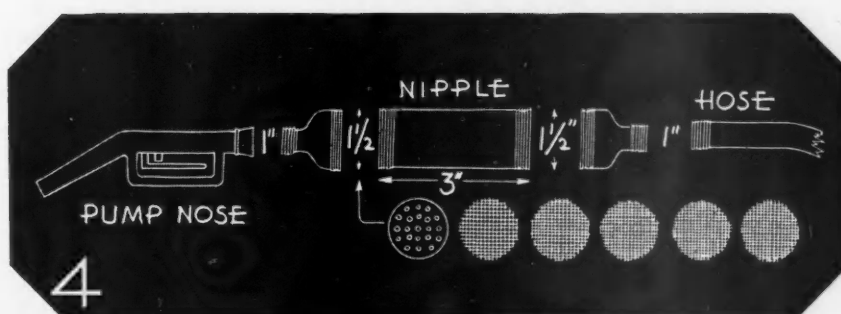
By JOSEPH J. BEAUCHAMP

Crisfield, Md.

WE had some No. 3 cross-members break on our Fords as a result of having (TURN TO PAGE 81, PLEASE)



... Will be Paid by Commercial Car Journal for Each Shop Hint Accepted. Ideas Count—No Matter How Rough. We Will Polish Them for Publication.



HOLLYWOOD

Stars Trucks

In Film That Gives Rails a Razzberry

HOLLYWOOD'S moviemakers will soon uncork a rare bit of publicity for the truck industry. With the release (about April 1), of "Short Haul" (title later changed to "California Straight Ahead") there will be exhibited to the movies' worldwide audience—ten million people daily—thrilling, convincing proof of the superiority of highway shipment.

To the film moguls, the struggle which the trucking business successfully waged against competing methods of transportation appeared packed with drama and Writer Norman Boxer was assigned to interpret its romance.

In the resulting "motorplay"—as Scott Darling adapted it for Universal Studios—the central character, "Biff Smith" (played by John Wayne), is seen as a young and somewhat irresponsible bus driver for a midwest transit company.

You will see him, as the feature-length film unrolls, stopping at the school to pick up his daily load of children.

That he is popular with them is evidenced by the fact that two of the girls start a hair-pulling scrap to decide who will marry him. Biff, being a resourceful young man, promises to marry both of them.

Depositing the last of his passengers, he stops in front of the Porter Cafe, just in time to see Padula, who operates a fleet of trucks, tampering with a big six-wheeler evidently not his own. Padula and his henchmen ride away as



Biff comes up. Entering the restaurant, Biff finds Charlie Porter and his sister Mary jubilant because Charlie has just landed a contract trucking job of hauling to Chicago for a local creamery. Biff tells them what he just saw outside and they investigate, finding that Padula has disabled the motor and thus made the first trip—a rush order—impossible. It seems that Charlie will lose the contract almost as soon as he

got it. But Biff, influenced by the fact that he is in love with Mary, suggests another plan; they will haul the load to Chicago in his bus. He almost backs down when he learns that the first cargo is Camembert cheese, but he goes through with it even though he realizes that it will probably mean dismissal from the service of the bus company.

Reaching Chicago, they dump their load and for the return cargo are of-



Movie Moguls Smell Drama in Struggle of Trucks Against Competing Modes of Transportation and Crank Cameras as Trucks Mush Across Mountains and Desert in Race with Rails



Top—John Wayne as Biff Smith and Louise Latimore as Mary Porter, hero and heroine respectively of Universal's "California Straight Ahead"

Above—Smacko! Biff receiving. Just a one-sided brawl among truck drivers as an added touch of excitement in this film in which trucks score over the rails

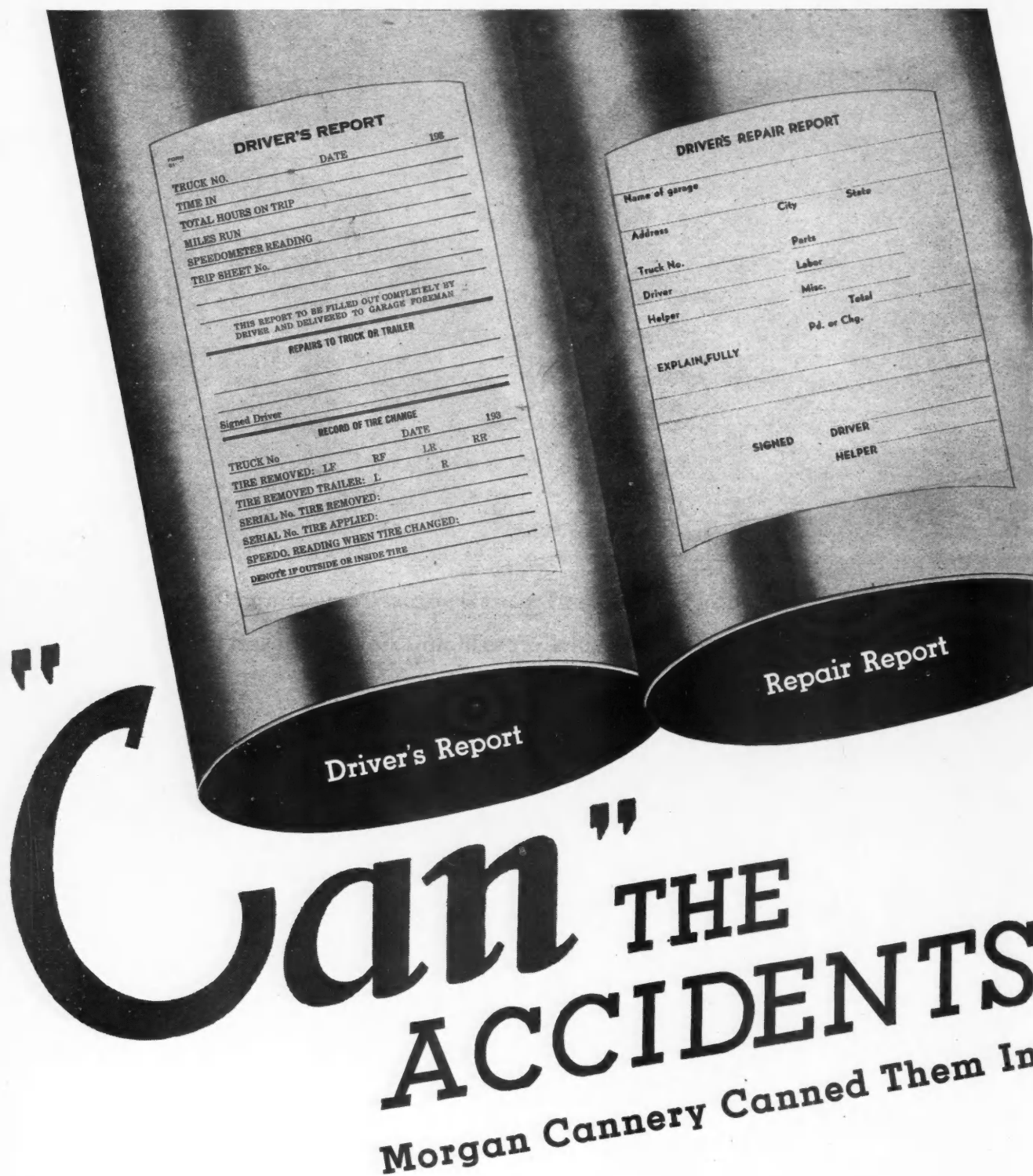
Opposite page—Literally this stunt smells. It's a variation in the action which leads up to the Triumph of Trucks

ferred a load of garden fertilizer! The bus already smells to high heaven from the cheese—nevertheless Biff accepts for Mary's sake.

Next day, Biff is called into the office of the bus company president and fired. It seems that women have been calling up all day, complaining about the frightful odor in the school bus. The phone rings while Biff is there and he recognizes Mary's voice—she has

been doing all the calling, simulating various mothers' voices, so as to ensure Biff being discharged. (All along she has wanted him to go into partnership with Charlie in the hauling business.) Well, her plan works and the truck soon bears the sign "Porter & Smith". To Mary, her new job of truck company secretary and bookkeeper is the beginning of life—much to be preferred (TURN TO PAGE 89, PLEASE)

By A. B. LAING



FOR the year ending June 30, 1936, the fleet of the Morgan Packing Co., Austin, Ind., consisting of 86 units of the tractor and semi-trailer type and 10 four-wheel trucks, manned by 150 drivers and helpers covered a total distance of 5,812,423 miles and was involved in only 29 chargeable accidents, none of which was fatal. This driving record figures .4989 accidents per 100,000 miles driven. During this year our drivers made a no-accident driving rec-

ord that we believe is a record for safe driving. From Feb. 21, 1936, to May 28, 1936, the fleet was driven a distance of 1,424,048 miles and was not involved in a single accident. For this splendid record, the Morgan fleet and drivers won the National Safety Council's award for the inter-city trucking class in the contest which ended last June, 1936.

Our safety record is the climax of three years of safety campaigning. We started late in the fall of 1933 when it

was realized that some concerted effort would have to be made to curb the high frequency rate of accidents that our fleet was being involved in. With this curbing of accidents as the goal, I. H. Morgan joined the National Safety Council and immediately placed a full safety program in effect. That this move has been well rewarded can be seen by the rapid decrease in the number of accidents since that date. See the table on page 76.

BE CAREFUL SAFETY FIRST!

Trip No. _____ Date Started _____ Hrs. Out _____

Truck No. _____

To _____ Wt. _____

From _____ Wt. _____

METER READING _____ TIME _____

STOPS

TOWN	TIME STOPPED	TIME STARTED	SPEEDOMETER READING	REASON	BY

DRIVER _____

HELPER _____

DRIVER'S LOST TIME REPORT

To be filled out in detail whenever more than one hour is required for making any one Delivery, Pickup, Road Repair, Lay-over, Gas & Eat or for any reason that caused a delay on the trip.

MUST BE ATTACHED TO THE STOP CARD

Truck No. _____ Date _____

First Name or Place of Delay _____ State _____

City _____ Time Started _____

Time Stopped _____

EXPLANATION OF DELAY

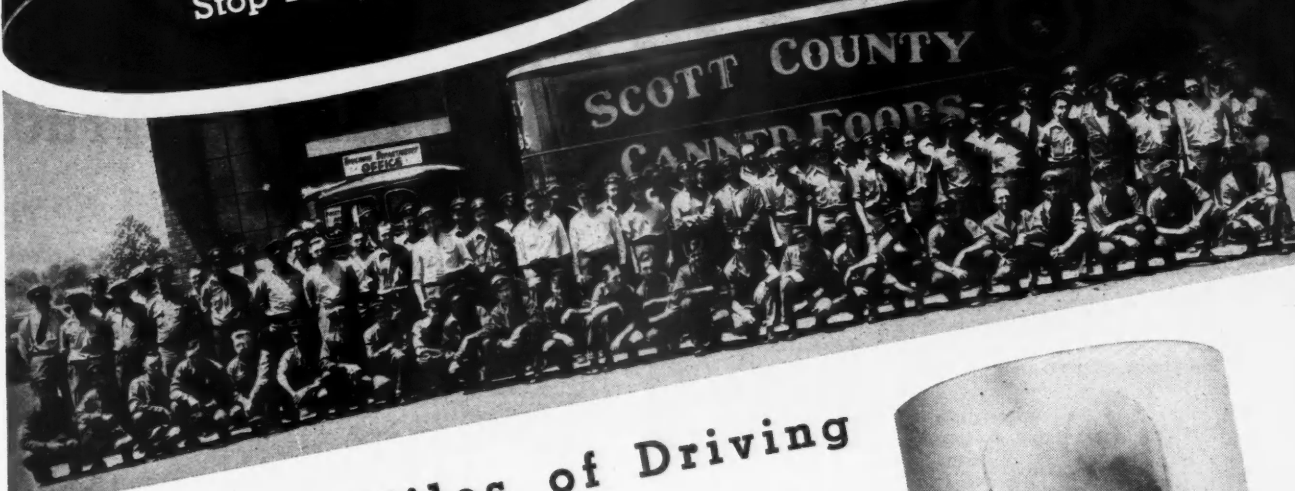
Driver _____

Helper _____

No Excuses Will Be Accepted For Unexplained Delay

Stop Time Report

Lost Time Report



1½ Million Miles of Driving

It Was Just a Dish of Duck Soup to This Packing Company Fleet Whose Safety Program and 7 Varieties of Shop Forms Put Accidents On the Shelf

No figures are available that show the amount of money saved by stopping the high-accident rate. But that many hundreds of dollars have been saved can be readily understood, for in 1933 there were no insurance companies anxious to cover the fleet's risk. To purchase insurance was indeed a difficult undertaking. Today this is all changed. The company can place its insurance where it will and is being solicited for the privilege of underwrit-

ing the accident risk. This speaks for itself and shows that dollars are being saved.

IN our safety program, the company utilizes the full facilities of the National Safety Council. This program consists of—first in importance: training of drivers. A new man is not permitted to drive a truck alone until he has proved by actual tests that he knows how to operate a truck. Then he must

By W. C. ROYCE, Safety Director, Morgan Packing Co. Austin, Ind.

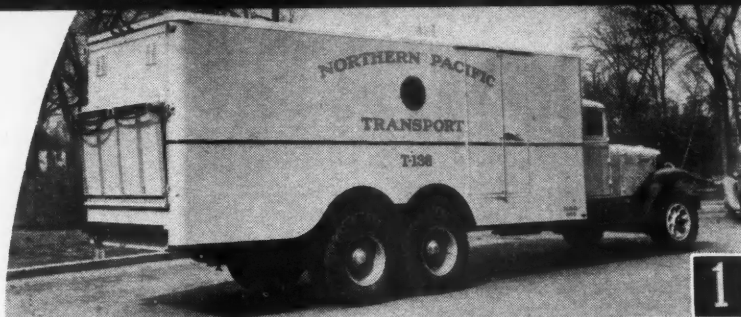
make several short trips (trips that do not keep him on the road late at night), in company with one of the older drivers. After the old driver has reported him as suitable he is kept on

(TURN TO PAGE 74, PLEASE)

1. HERE is a powerful truck that twice nightly tops the Continental divide (Elev. 6325 ft.) between Helena and Drummand, Mont. It's a model A-7-F INTERNATIONAL equipped with a two-axle drive. The huge aluminum body measures 21 ft. by 81 in. by 72 in. and will handle a 12-ton payload of general merchandise. It was built by ECKLAND BROS. of Minneapolis and is insulated with 2 in. of DRY-ZERO in roof, sides and ends.

2. THIS camel-back conversion of a 180-in. DODGE chassis made it possible to mount a 1000 cu. ft. body. Overall length is 25½ ft. from bumper to bumper. The cab-over-engine arrangement added 135 cu. ft. of pay load space, which meant an additional 30 in. of space front to rear. Cab accommodates three persons. A large end-gate and double doors are in the rear. This is said to be the largest furniture van ever mounted on a Dodge chassis.

3 & 3A. CHEVROLET totes this special candy body built by REX-WATSON, Canastota, N. Y., for



1



2

THE

Album of Modern Truck

Bennett of Oswego. Candy racks shown in the interior are made of tubular aluminum to save weight. Walls are lined with plywood over 2 in. of insulation. Entrance to the body is either from front or rear. A tightly fitting weatherproofed door is directly to the right of the driver's seat.

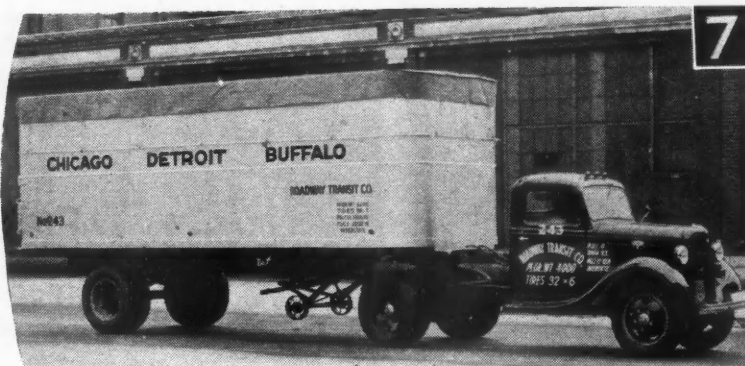
4. MINNEAPOLIS to Chicago is the route covered by this HIGHWAY refrigerated semi-trailer of drop frame design built for Central Wisconsin Transport. The trailer is insulated with 4 in. of DRY-ZERO in the roof and 3 in. in the sides. Tractor is a GMT.

5. THIS aluminum body which makes a 11-ton payload possible will make you wet your chops. The body, built by BARRY & BAILEY of Philadelphia, measures 18 ft. by 8 ft. and weighs 2380 lb. It is mounted on a model CH, 3-axle MACK chassis.

6. STEWART and FRUEHAUF combine to furnish a splendid product to Larsen, Brooklyn, N. Y. "bakers of splendid products." The tractor is deluxe equipped. Semi-trailer is finished in cream and green and the lettering is green with gold leaf trimmings. The color combination is "safe" from the point of view of visibility on the highway.

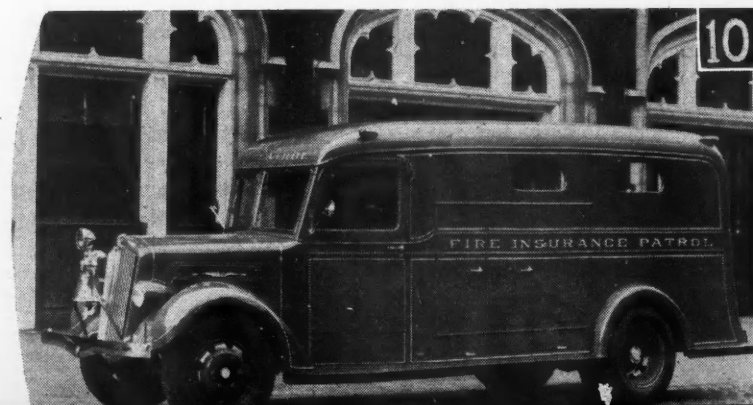
7. THIS neat semi-trailer job is the work of B&J TRAILER CO., better known as their synchro-float model. Roadway Transit Co. operates it around the Great Lakes area, using a FORD tractor for power. Trailer body is an open top style with a tarpaulin handy for weather protection.

8. 7000 pigs are fattened for market and this TRAILMOBILE trailer totes the garbage that fattens them. Model trailer shown is H-31. Body is smooth panel steel with the floor directly on the trailer frame by use of outriggers attached to the side rails for the length of the trailer. Body is water tight, guaranteeing against dripping and is provided with hooks for a tarpaulin. A perforated steam pipe circles the body at the floor to keep the refuse warm during cold weather and make removal easy. Tractor is a CHEVROLET. Operator is Riddley Farms, Westville, N. J.

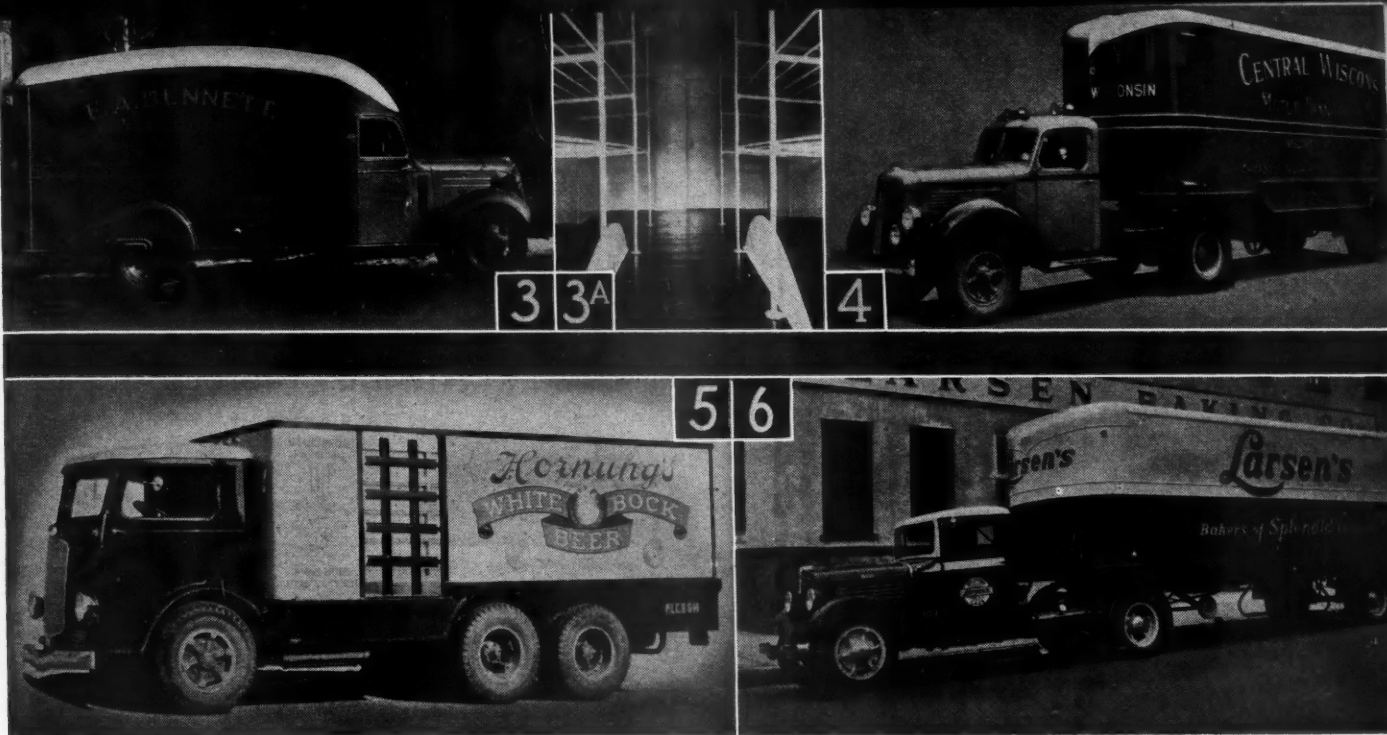


7

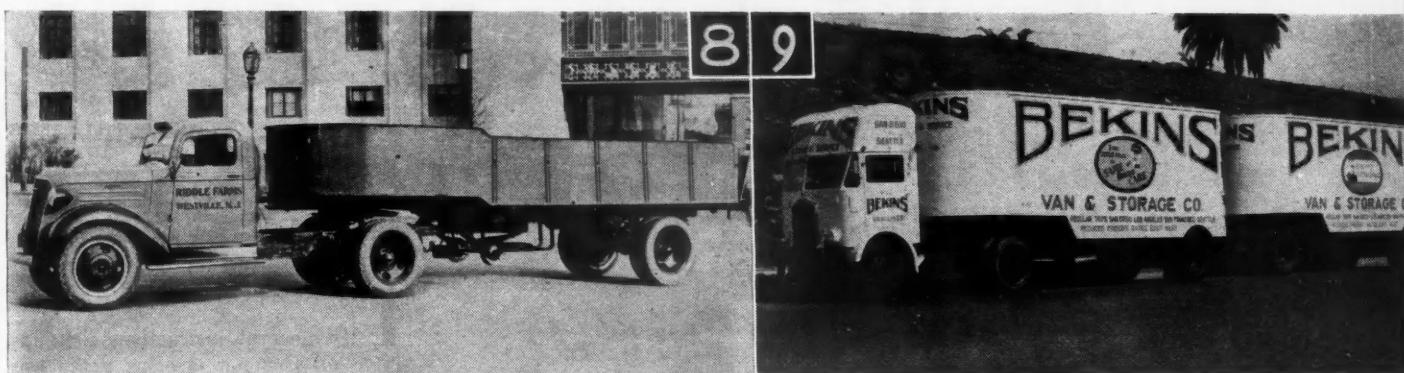
9. THIS trailer train is a source of satisfaction to Bekins of San Diego as well as to STERLING whose 125 hp. diesel-equipped tractor hauls the FRUEHAUF semi-trailer and full trailer behind. The latter is really a semi with a converter dolly. Combined weight and payload is 40,000 lb. A feature of the camel-back cab is the overhead sleeper and the fact that the cab is hinged in front and may be tilted forward for servicing the engine. Neither snow covered mountains nor sun baked sands, through which this trailer-train travels, faze it.



10

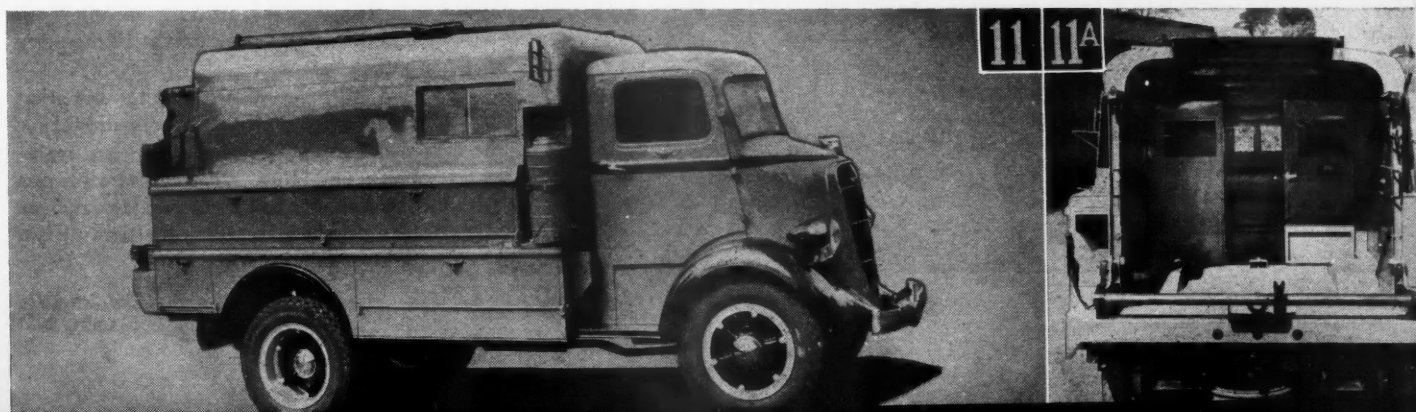


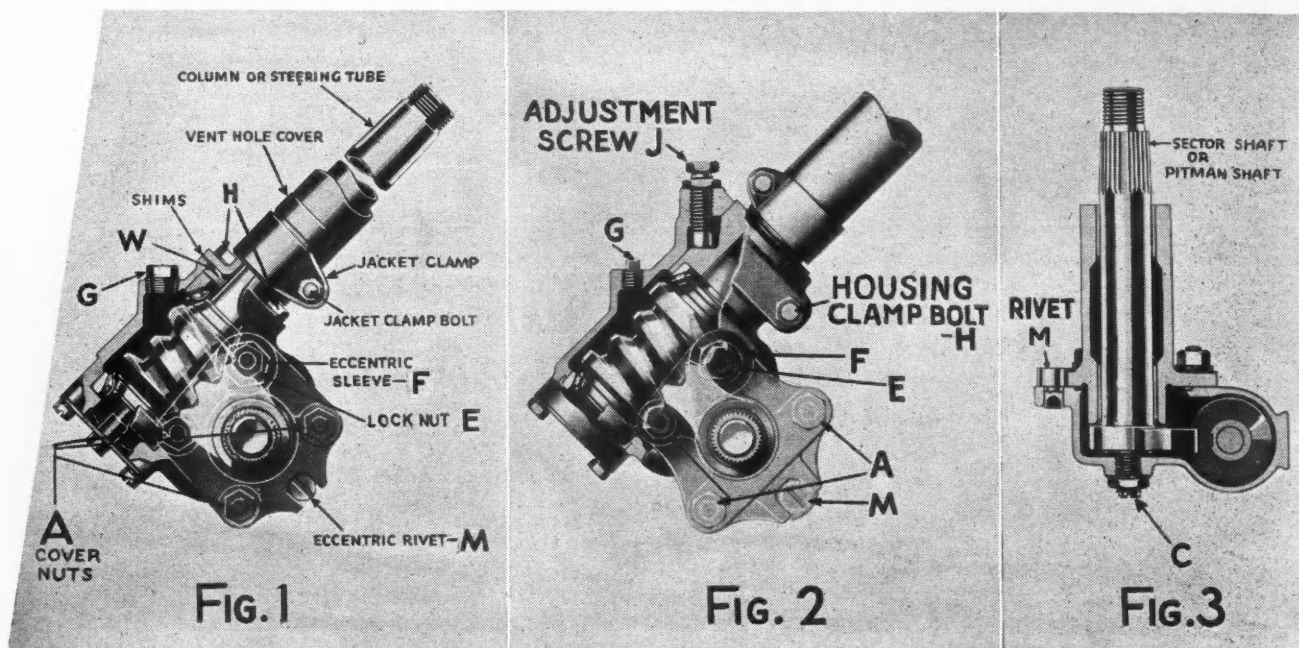
Transportation Equipment



10. MAREMONT of Chicago built this fire patrol body and mounted it on a WHITE drop-frame chassis. Features are a French metal roof, beaver tail, compartments for equipment used in fire insurance work, frame cut at rear and bridged to give greater clearance. Rubrails at the bottom of the skirt are made of 3/16-in. diamond plate. Special equipment includes a radio receiving set. Chicago's fire-fighters may now ride in comfort.

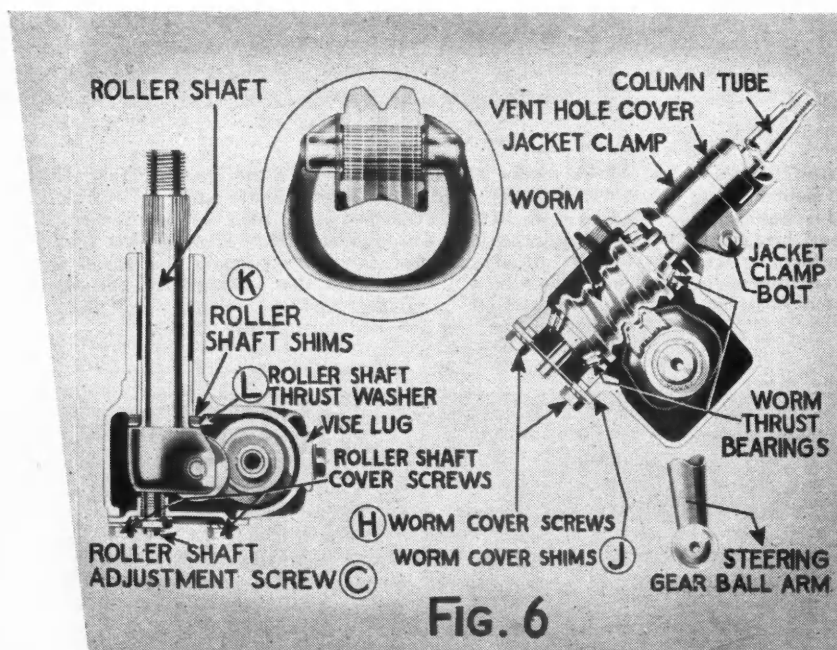
11 & 11A. IN LINE with its utility feature, this STUDEBAKER COE, equipped with a body built by AMERICAN COACH & BODY CO., Cleveland, lines up for line work for utility companies. The all-metal body is no pocket battleship but is full of "pockets" for every purpose and has a sliding roof. Note from the rear view that seating space for the crew is partitioned off. A sliding window (see side view) gives them a view of the scenery—and air—during transit.





GOOD STEERS ON

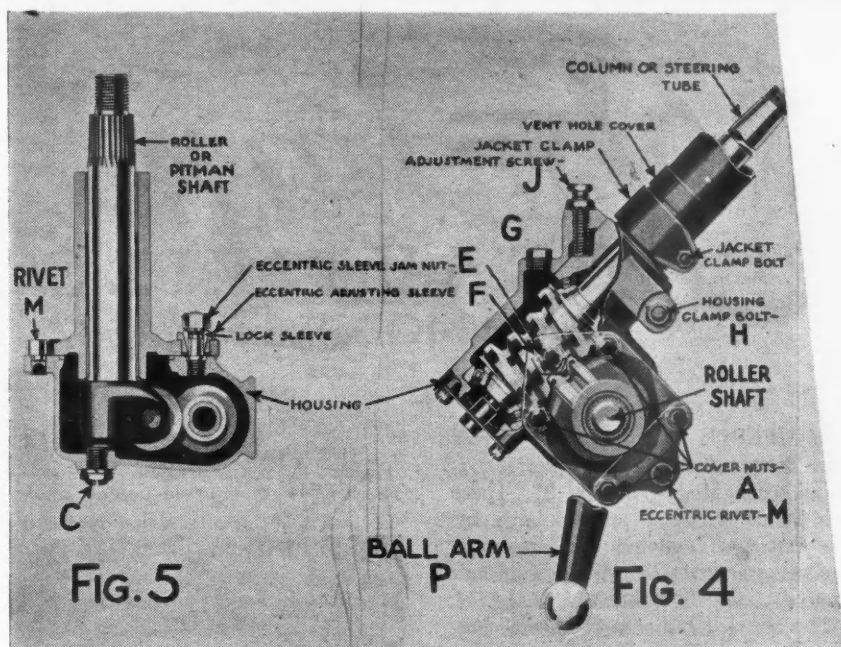
Steering



THE general instructions that apply to all Gemmer steering gears are the same as the general instructions for all steering gears which appeared on these pages last month but are repeated for the sake of convenience before going into the specific instructions for the different models of Gemmer steering gears.

A. For All Gemmer Steering Gears.

1. Jack up front end of vehicle until front wheels are clear of the floor and disconnect drag link at Pitman arm ball.
2. Test front wheels to see that spindles turn freely in both directions.
3. Loosen steering gear to frame bolts and turn steering wheel from extreme right to extreme left and return to straight ahead position. Then tighten gear to frame bolts.



Illustrations are of (1, 2 & 3) Two and Three Sector Types; (4 & 5) Worm and Roller Types; (6) Double Roller Integral Housing Type

relative only to the type of gear described in the heading under which they appear.

Models 55, 65, 70, 85, 90, 95, 120, 130, 140.

B. Three Tooth Sector Type—For eliminating column up and down play.

The three tooth gear is provided with a spring steel corrugated washer between the worm upper thrust bearing and the housing cap. This washer shown at (W, Fig. 1) acts as an automatic take-up for a limited range of bearing wear, thereby eliminating the need for frequent adjustment. Shim adjustment is necessary only when the up and down play exceeds .010 in. Shims are located under the housing cap (between W and H, Fig. 1). To

Gear

ADJUSTMENT

Part 2

... of Gemmer Steering Gears of Two and Three Tooth Sector Types, Worm and Roller Double and Single Roller Types and Double Roller Integral Housing Type

By HENRY JENNINGS, Technical Editor, Commercial Car Journal

4. Loosen steering column at dash bracket to permit steering column to find its own position. Note this position and if tightening the anchorage springs the column, correct the misalignment by elongating the bolt holes or by shimming the dash bracket. Connect Pitman arm to drag link.

5. When lubricating always use an approved steering gear lubricant and no other. Fill the steering gear through the pipe plug hole until the lubricant begins to run out of the vent hole in the jacket tube.

This concludes the general instructions. The instructions that follow are

check worm shaft up and down play.

1. Turn steering wheel one turn from straight ahead position. Grip steering wheel firmly with one hand and place the other hand on the column at the base of the steering wheel hub so that any up and down movement of the wheel can be felt. Accuracy can be obtained by fitting a dial gage to the column so that it will record up and down movement of the hub.

2. With the front end jacked up have another mechanic shake the road wheels violently in a sidewise direction. If the up and down motion is more than .010 in. a shim should be removed from under the housing cap.

To remove the shim:

3. Loosen jacket clamp bolt (Fig. 1)

and move clamp up about $\frac{3}{8}$ in. Loosen instrument board bracket at jacket so that jacket may be slid in bracket. Work jacket down so that its lower edge is against the housing cap.

4. Remove housing cap screws (H, Fig. 1) and work jacket up until stopped by steering wheels hub recess. With a knife separate shims. Cut one shim clear through at an angle and remove.

5. Reassemble in reverse order taking care to get jacket far enough down to prevent its top from bearing against the steering wheel hub.

C. Two and Some Three Tooth Types—Instructions for eliminating column up and down play.

6. With steering wheel about $\frac{1}{8}$ turn from either extreme position loosen housing clamp bolt (H, Fig. 2) and also lock nut on adjustment screw (J, Fig. 2) and clamp at the instrument board. Using a 6 in. wrench turn adjusting screw (J) in as far as possible. Then back up $\frac{1}{6}$ of a turn.

7. Tighten lock nut and clamp bolt. Turn steering wheel through full rotation. It should turn freely and still there should be no up and down play. If stiff spots show up look for worn or damaged bearings.

D. Two and Three Tooth Type—Instructions for eliminating end play in Pitman shaft.

8. With front wheels jacked up disconnect drag link at Pitman arm ball. Make sure that lock nut (E, Figs. 1 and 2) and cover nuts (A, Figs. 1 and 2) are tight. Turn steering wheel to either extreme and then back up $\frac{1}{8}$ of a turn.

9. Proper adjustment calls for free rotation without any perceptible end play. Adjust as required by means of screw (C, Fig. 3) on engine side of housing and be sure that final tightening of the lock nut does not change the adjustment.

E. Two and Three Tooth Types—Instructions for mesh of sector teeth in worm.

10. Determine straight ahead position of gear by turning from one extreme to the other and then turn wheel halfway back to straight ahead position. Loosen cover nuts (A, Figs. 1 and 2) $\frac{1}{4}$ turn each and lock nut (E, Figs. 1 and 2) $\frac{1}{2}$ turn.

11. With the gear in straight ahead position turn hexagon headed eccentric adjusting sleeve (F, Figs. 1, 2, 3) clockwise gradually, checking at each movement the amount of sector tooth to worm backlash by slight fore and aft movement of the Pitman arm. Movement of the sleeve should always end in a clockwise direction so that the

COMPLETE and distinctive streamline design features the restyled Indiana truck Models 86 and 87. These White-built Indiana models have for the first time adopted the streamline design executed by White through Count Alexis de Sakhnoffsky.

The restyled Indianas feature a completely new radiator front, grille and hood, with a sloping V-shaped windshield. Both models—86 and 87—are

powered by Hercules six-cylinder JXB engines of 263 cu. in. displacement. The "L"-head type monobloc engine



adjustment will hold. If it becomes necessary to back off on the sleeve do so in excess of the required amount and then adjust by turning clockwise. Adjust only tight enough to eliminate tooth backlash.

12. Turn steering wheel through full travel and check for free operation, if too tight re-adjust as outlined in 10 and 11. If the adjustment is correct tighten lock nut (E, Figs. 1, 2, 3) and tighten housing cover nuts. Be sure to tighten E before tightening the cover nuts. Very often, tightening the housing bolts increases the load on gears. Usually set slightly less than required, then tighten bolts and try same.

In most cases this will provide a satisfactorily adjusted steering gear but in some cases after repeated adjustments it may be noticed that there is more backlash to one side of the mid-position than there is to the other. To compensate for this on some models a centralizing adjustment is provided. This adjustment is the eccentric rivet shown at (M, Figs. 1, 2, 3).

F. To centralize the sector teeth.

13. Loosen housing cover nuts (A) about $\frac{1}{4}$ turn and also loosen sleeve lock nut. Turn sleeve (F) to a point where there is some backlash throughout the range. Tighten (E) temporarily.

14. Place steering gear in straight ahead position. Turn steering wheel $\frac{1}{3}$ of a turn to the right and shake the Pitman arm and note the amount of lash at this point. Then turn the wheel $\frac{2}{3}$ of a turn to the left which makes it $\frac{1}{3}$ of a turn to the left of straight ahead position. Shake the

Pitman arm again for lash. It should be the same as with the wheel $\frac{1}{3}$ of a turn to the right of straight ahead position.

15. If there is more lash with the wheel to the left of straight ahead turn the eccentric rivet (M) in a counter clockwise direction. If the lash is greatest when to the right of straight ahead turn (M) clockwise.

16. After the lash has been adjusted for left and right positions readjust for

GEMMER APPLICATION LIST

Truck, Make, Model, Year	Steering Gear Model	Adjustment Instruction Letter*
DODGE		
KC, KCL (1934-35)	300	A,J,K,L
KH30, KH31, KH32, KH33 (1934-35)	120	A,B,D,E,F
K30, K31 (1934)	330	A,J,K,L
K32, K33, K34, K45, K46, K47, K48, K32V, K33V (1934-35)	140	A,B,D,E,F
KH31V, KH32V, KH33V (1935)	120	A,B,D,E,F
K34V, K45V, K46V, K48V (1935)	140	A,B,D,E,F
K60V, K61V, K62V, K63V (1935)	170	A,C,D,E
LC (1936)	300	A,J,K,L
LE30, LE31, LE32 (1936)	120	A,B,D,E,F
LF35, LF36, LF37, LH45, LH46, LH47, LH48 (1936)	140	A,B,D,E,F
LM70, LM71, K60V, K61V, K62V, K63V (1936)	170	A,C,D,E
FEDERAL		
DM (1933-34-35-36)	140	A,B,D,E,F
D4, E4, D2SWL, E2SWL, D2DL, E2DL, F7, F8LG5L (1933)	140	A,B,D,E,F
A7 (1933)	360	A,G,H,I
X8, X8DR (1933-34-35-36)	230	A,G,H,I
B15 (1934-35-36)	140	A,B,D,E,F
B20 (1934)	140	A,B,D,E,F
B20, B25 (1935-36)	370	A,J,K,L
B25 (1934)	360	A,G,H,I
15 (1934-35-36)	140	A,B,D,E,F
20 (1934)	140	A,B,D,E,F
25, 21, 22 (1934)	360	A,G,H,I
30 (1934)	360	A,G,H,I
18 (1935-36)	140	A,B,D,E,F
20, 25, 28 (1935-36)	370	A,J,K,L
30, 21 (1935)	370	A,J,K,L
9, 10, 11 (1936)	140	A,B,D,E,F
29 (1936)	370	A,J,K,L
75, 80, 85, 89 (1936)	370	A,J,K,L
FORD COMMERCIAL	140	A,B,D,E,F
FORD TRUCK	305	A,G,H,I

* Refers to letters of instructions on these pages which apply to gear specified in column 2.



Streamlining of Model 86 above and 87 at left features new radiator front, grille and hood, V-typed windshield, etc.

has a bore and stroke of $3\frac{5}{8} \times 4\frac{1}{4}$, and an A. M. A. rating of 31.54 hp.

The White-built Indiana Model 86, with a rating of 1-1 $\frac{1}{2}$ tons, has a four-speed transmission and a standard wheelbase of 131 in. and allows for optional wheelbases up to 192 in. Four

wheel hydraulic brakes have 264 sq. in. of lining area.

Nominally rated at 2 tons, Indiana Model 87 has a standard wheelbase of 131 in. with optional bases up to 192 in. Four-wheel hydraulic brakes have a lining area of 264 sq. in.

proper mesh as outlined in 10, 11, 12.

G. Models 205, 210, 215, 220, 305, 340, 360—Double and single roller type.

Worm and Roller Type—Instructions for eliminating end play in Pitman shaft. Double and single roller gears are adjusted in the same manner.

17. Loosen lock nut (E, Fig. 4) and cover nuts A. Turn steering wheel to either extreme and back up about $\frac{1}{8}$ of a turn.

18. Grip ball arm (P, Fig. 4) and push in and out to check the amount of play. Proper adjustment calls for free rotation without any perceptible end play. Adjust as required by means of screw (C, Fig. 5). Be sure tightening lock nut doesn't change adjustment.

H. Worm and Roller Type—Instructions for eliminating column up and down play.

19. With steering wheel about $\frac{1}{8}$ of a turn from either extreme position loosen the thrust adjusting screw (J, Fig. 4) $\frac{1}{2}$ turn. Tighten the housing clamp bolt (H, Fig. 4) as much as possible without stripping and then back off until lock washer under nut is half flattened.

20. Using a 6-in. wrench turn thrust screw (J) in as far as possible and then back up $\frac{1}{6}$ of a turn. Hold in this position and carefully tighten the lock nut and clamp bolt (H) securely. Turn steering wheel through full rotation and if stiff spots show up look for damaged worm or bearings.

I. Instructions for mesh of worm and roller.

21. Place steering wheel in mid-position. Loosen housing cover nuts (A, Fig. 4) $\frac{1}{4}$ turn and locknut (E, Fig. 4) $\frac{1}{2}$ turn.

22. With gear in mid-position turn hexagon headed eccentric adjusting sleeve (F, Fig. 4) clockwise gradually checking at each movement the amount of roller to worm backlash by slight pressure fore and aft on the Pitman arm. Movement of sleeve (F) should always end in a clockwise direction so that the adjustment will hold. If it becomes necessary to back off on sleeve do so in excess of the required amount and make the finish movement in a clockwise direction. Adjust only tight enough to eliminate roller backlash.

23. Turn steering wheel through full travel and check for free operation. If okay tighten lock nut (E) and the housing cover nuts. It is important that (E) be tightened before the cover nuts.

J. Double Roller Integral Housing Type applies to models 300, 330 and 370—Instruction for eliminating column up and down play.

24. With front wheels jacked up turn steering wheel about one turn to the right of straight ahead. Secure the wheel and grip the column just below wheel hub. Have another mechanic shake front wheels hard from side to side and note any end play in worm bearings. Any end play should be removed.

25. To remove end play loosen four worm cover screws (H, Fig. 6) and remove one shim (J, Fig. 6) at a time to reduce end play. Check adjustment by turning steering wheel and noting

any stiffness. Stiffness indicates that too many shims have been removed.

K. Instructions for eliminating end play in Pitman shaft.

26. Turn steering wheel to either extreme and then back $\frac{1}{8}$ turn. Grip the Pitman arm hub, Pitman shaft should rotate freely without any end play. If end play exists, adjust Pitman adjusting screw (C, Fig. 5) at back of housing. After locking adjustment reinspect for end play and free rotation.

L. Instructions for mesh of roller in worm.

27. Turn steering wheel to mid-position. With drag link disconnected, shake Pitman arm to determine looseness. If lost motion exceeds $\frac{1}{32}$ in., adjustment should be made. To do this roller shaft must be removed and in most cases the steering gear must be removed from vehicle.

28. Holding gear in vise with column to the right remove roller shaft taking care that all roller shaft shims (K, Fig. 6) remain on shaft.

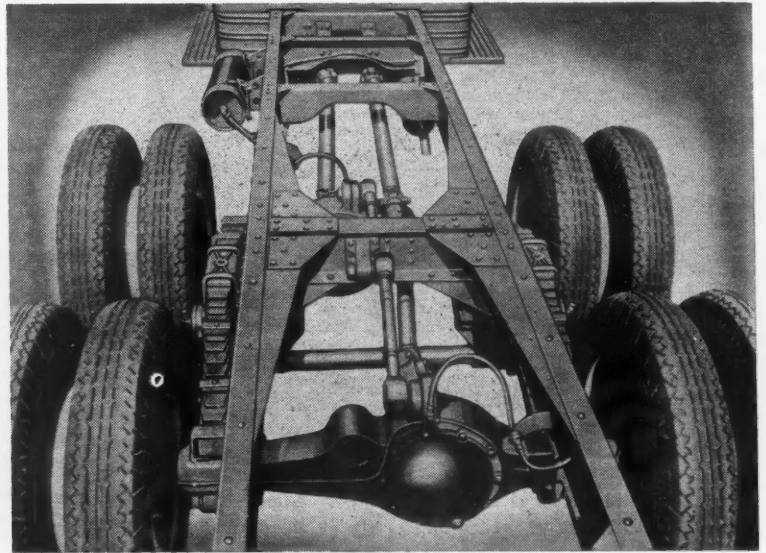
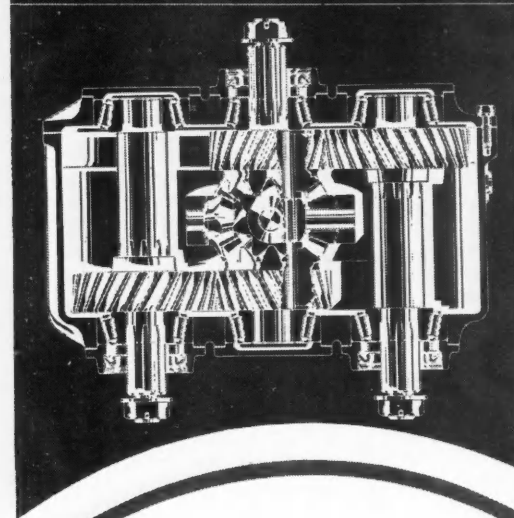
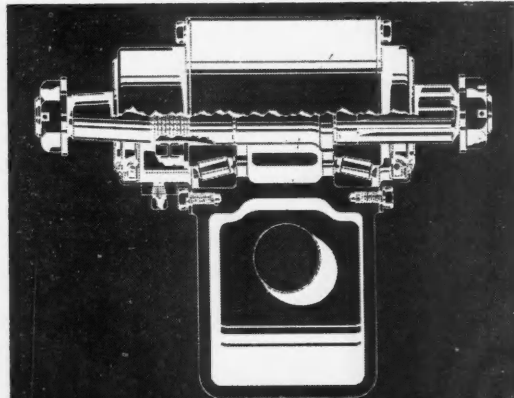
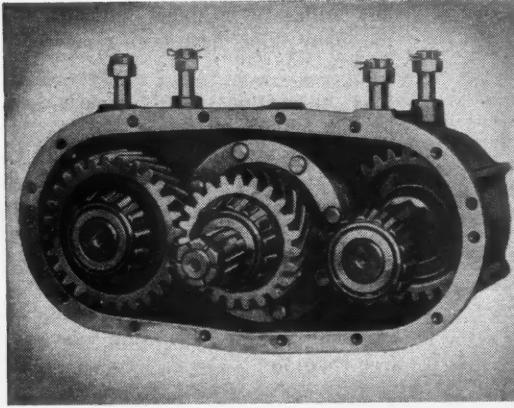
29. Remove jacket from gear housing and then replace steering wheel on column. If proper worm bearing adjustment has not been obtained, adjust. Note that the roller shaft thrust washer (L, Fig. 6) is assembled with chamfered side next to roller shaft thrust face.

30. Remove roller shaft shims (K) to obtain proper mesh of roller shaft and worm. There should not be more than .006 in. play measured at the end of the Pitman arm and no drag on the steering wheel. Remove only one shim and temporarily insert roller shaft in housing without reinstalling cover plate. Then turn wheel nearly to the left stop. Hold roller shaft in place with thumb pressure on head end (cover plate end) of roller shaft and revolve steering wheel to right until roller is in center of worm. Do not reverse to the left. Holding roller shaft in place, grip the splined (opposite) end of roller shaft with other hand and try to turn it. If any play exists remove another shim.

31. Turn steering wheel to almost full left or right. Reinstall roller shaft cover tightening the cover screws slightly and then back off the adjustment screw (C) several turns and then tighten cover screws.

32. With roller still at either end of worm turn the roller shaft adjustment screw (C) until all end play in shaft has been removed. Lock roller shaft adjustment screw lock nut and reinspect gear for freedom of operation.

33. Reinstall gear in car making sure that gear is correctly aligned between instrument board bracket and frame.



Above—Showing installation of Timken Tandem driving axle. Left top—The torque-divider is mounted on the frame. Left center—The rear axle propeller shaft is mounted on forward axle housing. Left bottom—Torque-divider cross-section

THE Timken - Detroit Axle Co. is in production on a new tandem drive axle unit for 6-wheel trucks of 25,000 lb. gross weight.

Engine torque is delivered by the engine through a conventional transmission to a torque-divider which is rubber mounted on a cross member directly behind the transmission. The torque-divider has an inter-axle differential between two helical gear sets. This differential, the so-called Timken High-Traction differential, does not divide the torque equally between the helical gear sets unless there is equal traction for the axles which they serve. This unequal division of torque by a

differential is possible by use of differential gears of unusual tooth forms requiring a special cutting job.

Each pair of helical gears in the torque-divider which receive torque from the inter-axle differential drives a propeller shaft, one shaft driving the middle axle and the other driving the rear axle. The shafts supporting the helical gears in the torque-divider are roller bearing mounted.

The middle axle is offset to the right and the rear axle is offset to the left giving a straight line drive in each case from the torque-divider to the axles with a minimum of propeller shaft angularity. The torque to the rear axle is transmitted by a propeller shaft and short shaft rigidly mounted in roller bearings in a journal on top of the middle axle housing. From here a second propeller shaft continues to the rear axle. This construction allows

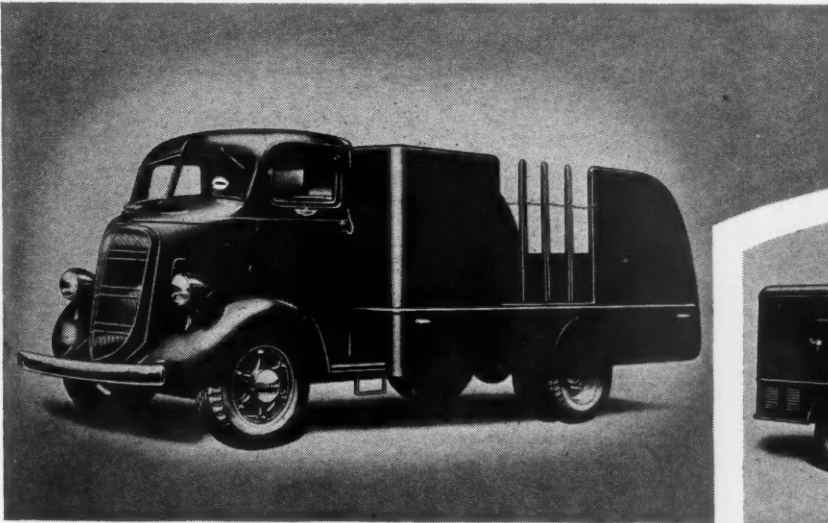
(TURN TO PAGE 64, PLEASE)

Timken

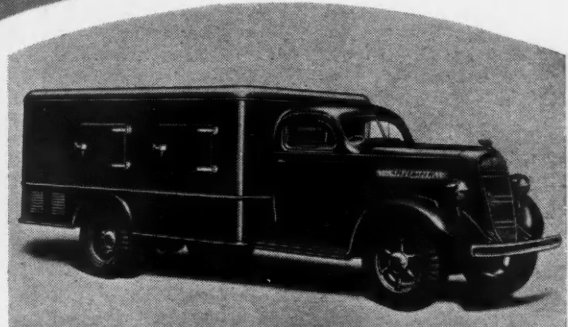
HAS NEW TANDEM FOR SIX-WHEELERS

...of 25,000 lb. Gross Vehicle Weight Featuring Torque Divider Mounted On Frame, Full-Floating Spring Suspension and Parallel Torque Rod System

COMMERCIAL CAR JOURNAL
MARCH, 1937



Left—3 to 4-ton cab-forward model J30M has a 383 cu. in. engine. Below—New standard series truck with modern type refrigerator type body. Cab interior is deluxe equipped and has been redesigned for comfort



Studebaker

...Adds Two Models to Make Cab-Forward Line of Four, and Four Conventional Models Featuring New Styling, Improved Cab and Increased Gross Weight

A COMPLETE new line of trucks, including two new cab-forward models in the medium and heavy duty fields, is announced for 1937 by the Studebaker Corp. The line consists of four conventional models and corresponding models in cab-forward design. In each weight classification the conventional truck and the cab-forward model carry the same price. New styling has been applied throughout the line.

The 1½-ton models are powered with essentially the same engine as last year, the engine being the same size (217 cu. in.). However, the horsepower rating has been stepped up from 75 to 85 as a result of design changes, including a change in the camshaft design and timing.

A Hercules JXB engine is the power plant of the 2-3-ton chassis in both conventional and cab-forward models. This engine has 263 cu. in. of piston displacement and develops 79 hp. at 2800

CAB-FORWARD

Model	Tonnage	G.V.W.	Base Chassis Price
J15M	1½-2	11,500	\$ 655
J20M	2-3	14,000	955
J25M	2½-3½	17,000	1495
J30M	3-4	20,000	1885

STANDARD

Model	Tonnage	G.V.W.	Base Chassis Price
J15	1½-2	11,500	\$ 655
J20	2-3	14,000	955
J25	2½-3½	17,000	1495
J30	3-4	20,000	1885

r.p.m. The maximum torque is 179 lb. ft.

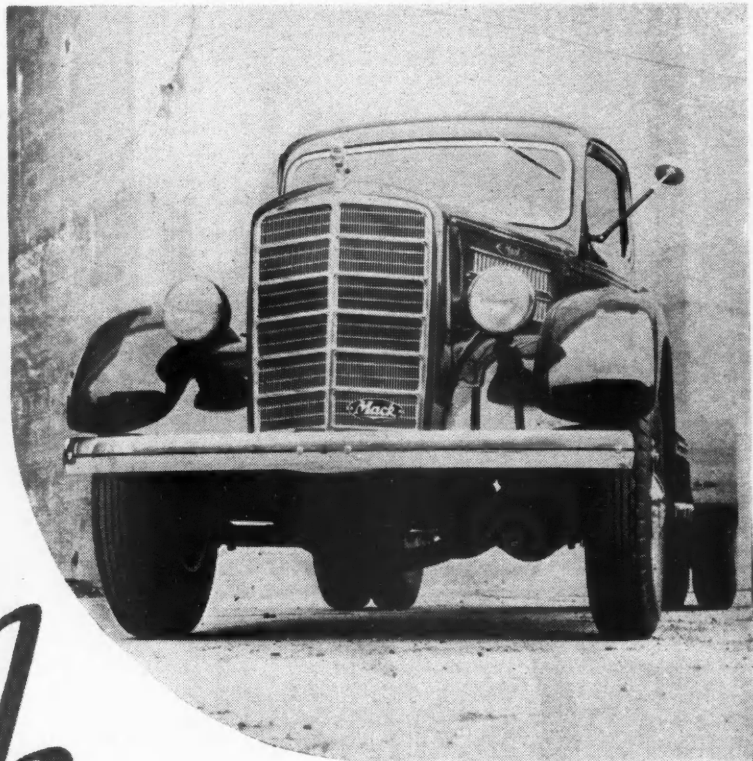
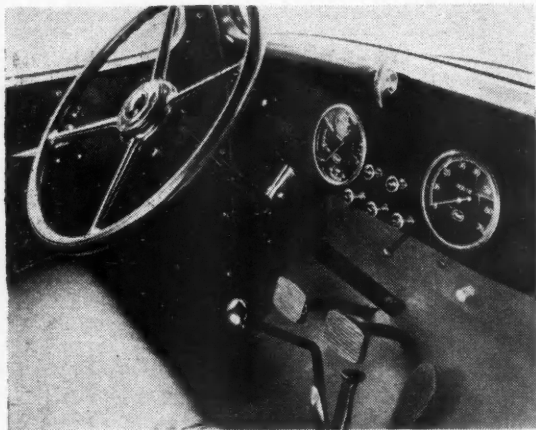
The next larger pair, the 2½-ton models, are powered by the Hercules JXD engine. This engine has 320 cu. in. of piston displacement, develops 85 hp. at 2600 r.p.m. and a maximum of 214 lb. ft. torque.

The largest models have the Her-

cules WXC3 engines which have 383 cu. in. piston displacement, 98 hp. at 2400 r.p.m. and 263 lb. ft. torque.

Increased gross ratings, sturdier frames, oil filters, wet type air cleaners, hydraulic brakes and heavier steering gears are features of the new models. The conventional line is available with wider, and more comfortable all-steel coupe cabs. Bodies are available in bright colors such as cardinal red, beverly blue, yellow, forest green and Bermuda blue.

The coupe-express, which completes the line, was described here in January.



Mack

DESIGNS A NEW TRUCK & TRACTOR

Models EM and EQ Rated at 20,000 and 23,000 lb. Respectively Come in Four Wheelbase Lengths From 146 to 194 in. for Truck and Three of 141 to 158 in. for Tractor

TWO new models, the EM rated at 20,000 lb. gross, and the EQ 23,000 lb. gross have just gone into production by Mack Trucks, Inc. In styling the two new models, Mack has carried out the same general design introduced last year on the EH, an 18,000 lb. gross model.

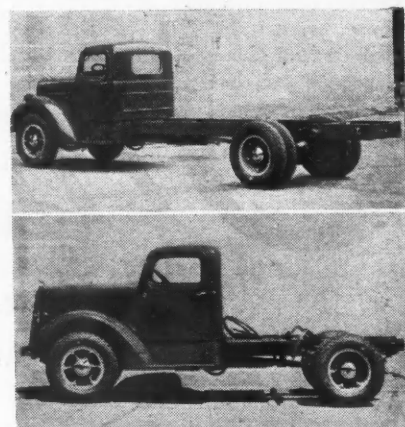
Fenders are full-crowned and creased, with high valleys between the fenders and the hood. Radiator grille is chromium plated, V'd and sloping. Chromium plating is used on the windshield frame, louver trimmings, hub caps and bumpers.

Adding to the pleasing modern appearance of the new trucks are deluxe, streamline cabs with sloping windshields, the angle of which is repeated in the radiator grille and louvers. Cab

roof is of all-metal construction built integral with the cab. Safety glass all around is standard. Interior fittings include dome light, coat hooks, and indirectly-lighted instrument board with clock-type instruments.

Model EM and EQ are offered in four standard wheelbase lengths from 146 in. to 194 in. for the truck, three wheelbases from 141 in. to 158 in. on the tractor.

The Model EM is powered by a six-cylinder engine with $3\frac{5}{8}$ in. x 5 in. bore and stroke developing 79 hp. at governed speed of 2300 r.p.m. Total piston displacement is 310 cu. in. Model EQ has a $3\frac{7}{8}$ in. x 5 in. powerplant generating 92 hp. at governed speed of 2300 r.p.m. with 354 cu. in. of piston displacement.

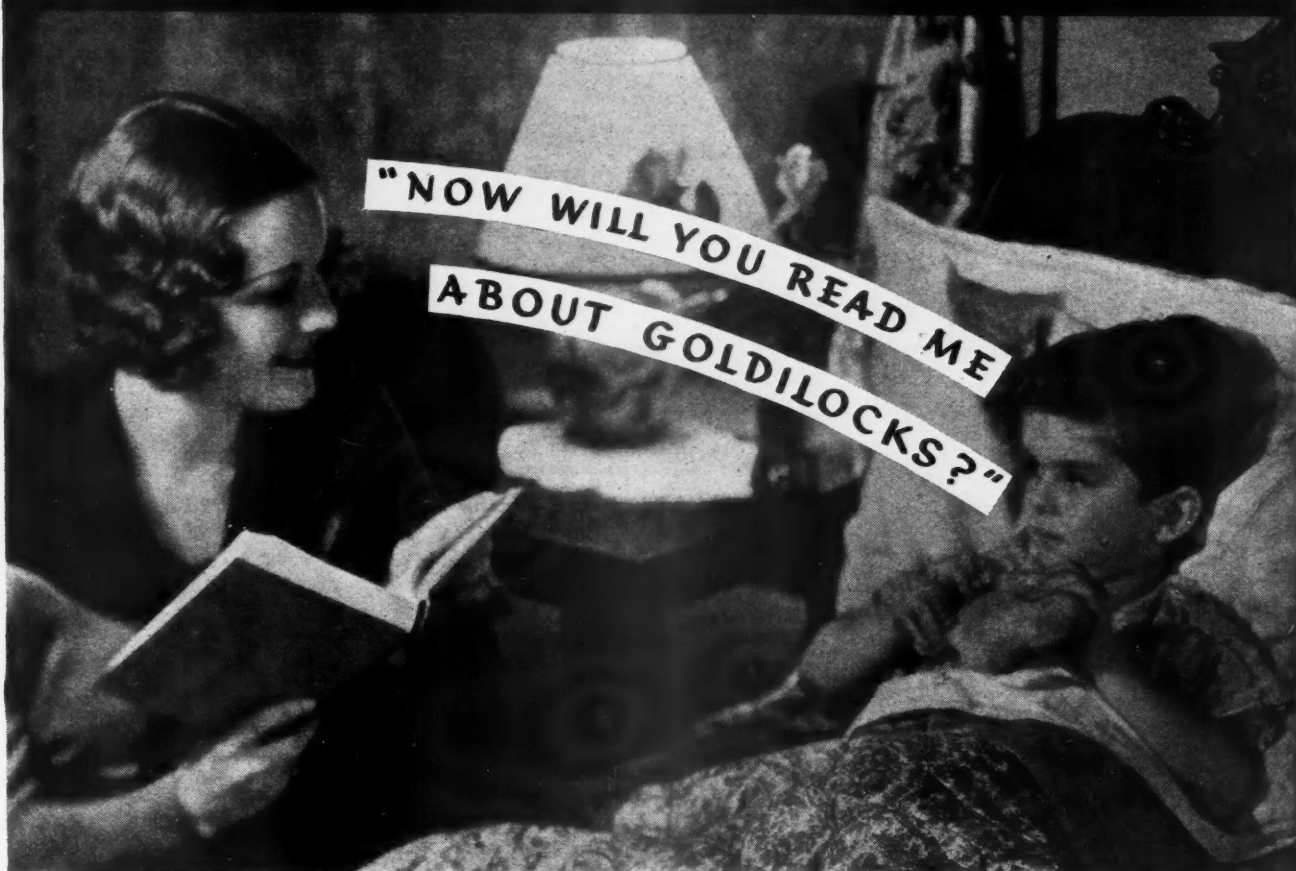


Top left—Showing conveniently designed cab interior. Top right—Head-on view of Mack model EM truck is attractively designed. Above are illustrated truck model EM and tractor model EQ

Among the outstanding features of both engines are case-hardened fully counterbalanced crankshaft; exhaust valve seat inserts of Mack's exclusive Niferrite alloy; Mack Permafit exhaust valves of austenitic steel for prevention of distortion at high temperatures; radiused cylinder bores to prevent cracked cylinders between the bore and the valve deck; cold circulation type thermostatic temperature control to promote rapid warming of cylinders; offset turbulence combustion chambers which permit high compression without detonation; and case-hardened nickel steel timing gears with generator ground helical teeth.

(TURN TO PAGE 56, PLEASE)

Sure, there's a place for fairy tales



...but not in your hauling records!

EVERY so often somebody "discovers" how many thousands of trucks have power braking . . . decides it must be a great business . . . figures out the quick way to get a slice of the business is to "give 'em something cheaper".

Great idea! Trouble is that fairy tales presently creep into the picture . . . such as "all power brakes are about alike".

That simply isn't so.

All power brakes are NOT anywhere near alike. Bendix B-K Controlled Vacuum Power Braking,

BENDIX PRODUCTS CORPORATION
(Subsidiary of Bendix Aviation Corporation) 401 Bendix Drive, South Bend, Indiana

BENDIX

Controlled Vacuum

POWER BRAKING

COMMERCIAL CAR JOURNAL
MARCH, 1937

which you'll find on the overwhelming majority of power-brake equipped vehicles, is there because it's different and better.

Bendix B-K Controlled Vacuum Power Braking *alone* provides every power braking advantage—many of them unobtainable in any other auxiliary stopping equipment.

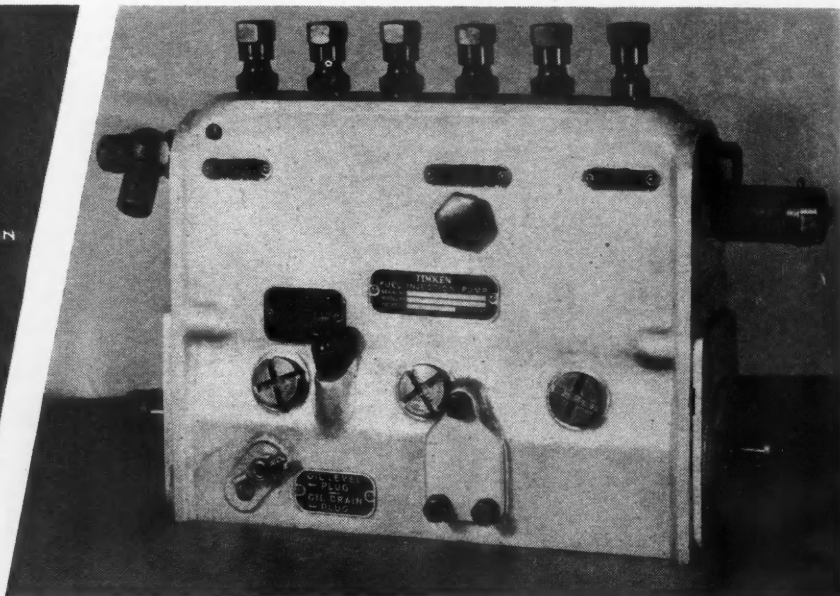
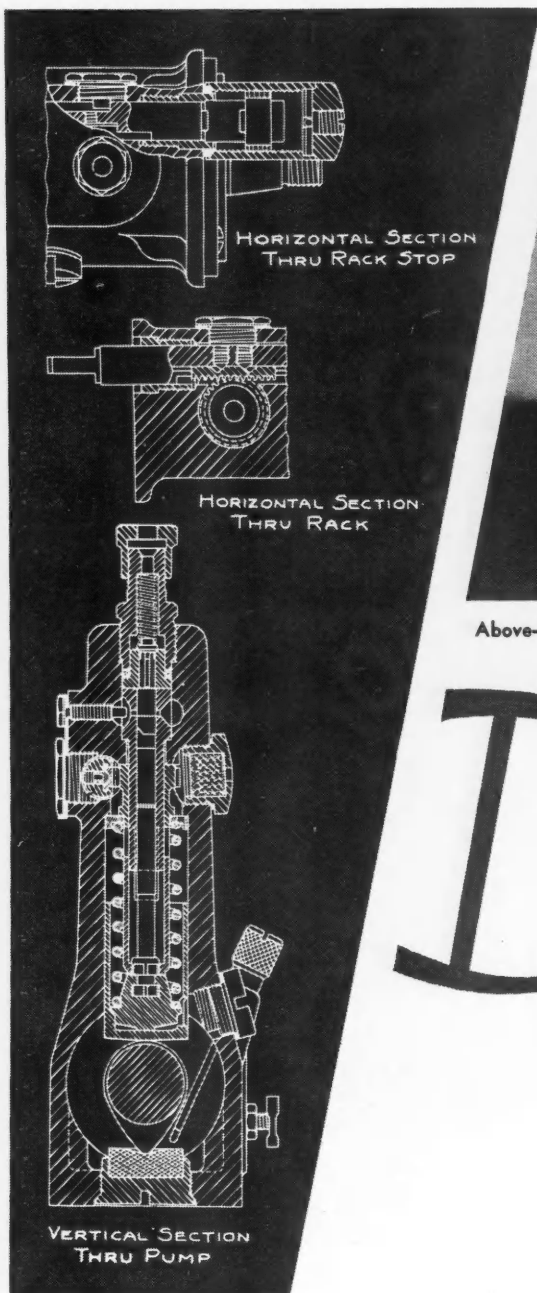
Genuine Bendix B-K Power Braking *belongs* on any truck. Its cost is possibly a very small amount higher than some. Its worth, on every count, is much greater.

May we explain in detail? Write—

WHY MOST POWER BRAKES ARE BENDIX

- ★ Least Weight Added
- ★ Fewest Added Parts
- ★ Low First Cost
- ★ Practically No Maintenance
- ★ Instant Remote Control
- ★ All Emergency Features of Train Operation
- ★ Quickly Installed
- ★ Original Brake System Left Intact
- ★ Fully Controlled Power Application
- ★ A Nation-Wide Exchange Plan
- ★ A Nation-Wide Service Organization
- ★ Years of Power Braking Experience and Unapproached Protection Over Future Years of Service





Above—Timken's solid injection fuel pump unit. Three cross-section drawings of the pump are shown at the left

Diesel Pump

By TIMKEN

Two Sizes of Fuel Pumps for Diesel Engines by Timken Roller Bearing Company Have Constant Velocity Cam Drive

THE Timken Roller Bearing Co. has just announced two sizes of multiple unit, integral cam shaft high-speed solid injection fuel pumps, one using a 4-9 mm. range of plunger sizes and the second a 5-11 mm. range. At present these pumps are being made for 1, 2 and 6-cylinder Diesel engines.

These pumps are the cam-operated helical plunger type, the metering being adjusted at the factory and sealed. At the lowest position of the plunger the cylinder receives a charge of oil from the feed line, which is kept filled by a feed pump connected to the fuel tank. Delivery of the fuel to the engine starts as soon as the piston covers the inlet port and ends when the upper

helical edge of the annular groove in the piston opens the overflow or by-pass port on the opposite side of the pump cylinder wall, releasing the pressure to the discharge line. The effective delivery stroke of the piston may be regulated by turning the piston in its cylinder to vary the point of the delivery stroke in which the overflow port is uncovered.

AN outstanding feature of these pumps is that they are driven by con-

stant velocity cams. Thus the delivery speed of the fuel entering the combustion chamber is maintained constant at a speed adapted to the rate of combustion. The deceleration portion of the motion comes late in the stroke, thus permitting the use of a lighter spring and reducing the spring load between the tappet and the cam.

For adjusting the pistons to vary the amount of fuel delivered, a rack rod extends horizontally along the rear face (TURN TO PAGE 58, PLEASE)

The five points you want in a battery

EXIDE'S new line of commercial batteries gives fleet operators the five essentials for long, low cost, trouble-free battery service.

★ **DEPENDABILITY.** These batteries are engineered for maximum dependability—a product of nearly fifty years' experience in building batteries exclusively.

★ **EXTRA POWER.** The new Exides equal or exceed the S. A. E. and U. S. Government standards for capacity.

★ **LONG LIFE.** They equal or exceed the same standards for battery life.

★ **MINIMUM MAINTENANCE.** They require a minimum of maintenance, for a very little periodic attention keeps them steadily on the job.

★ **ECONOMY.** A battery that gives practically no trouble, that requires a minimum of attention—and one that delivers exceptionally long life—is a battery that will save you money right from the day it is installed. That is why these new Exides are exceptionally low-cost batteries.

Write us for the name of the nearest Exide Wholesaler, who will give you full details on the four new Exides that take care of more than 90% of all commercial vehicles. For large trucks, there is the regular heavy-duty Exide line.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

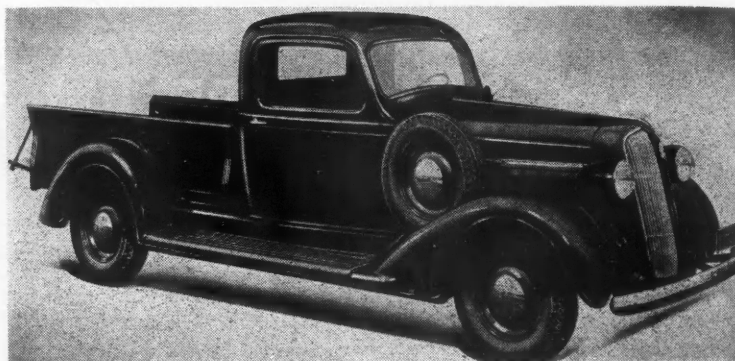
Exide

COMMERCIAL TYPE BATTERIES

Plymouth Offers a New Line of Commercial Cars

A LINE of commercial cars is announced by the Plymouth Division of Chrysler Corp. All models are mounted on a special commercial chassis of 116-in. wheelbase. The new Commercial Pick-Up and Commercial Sedan are already in production.

Plymouth's new commercial line is built from the ground up for commercial use, and is specially designed and engineered. The chassis includes a special truck-type frame with 6-in. side channels and five cross-members for extra strength.



The engine is of Plymouth L-head, designed for simplicity and ease of maintenance. The power plant boasts special economy features, such as high compression (6.7 to 1), valve seat inserts, U-slot pistons with four rings, etc.

The roller bearing universal joints require lubrication only after 20 to 30 thousand miles of driving, and a heavy duty transmission with five ball and roller bearings is built for long life. The rear axle is of the new hypoid

type. Plymouth hydraulic brakes are specified for all commercial jobs.

Both cabs and bodies of the new commercial line are of all-steel construction. Body interiors are unusually roomy, with low floors. The load compartment in the commercial sedan is 78 in. long at the floor, and 55 $\frac{7}{8}$ in. wide at the belt. The pick-up box is 6 ft. long, with a floor width of 47 $\frac{1}{2}$ in. The suburban wagon body is also available on the commercial chassis.

New Truck Registrations by Makes by Months

	Autocar	Brockway	Chevrolet	Diamond T	Dodge	Federal	Ford	G. M. C.	International	Mack	Reo	Sterling	Stewart	Studebaker	White-Indiana	Miscellaneous	Total
January.....1936	75	94	15,124	495	6,207	223	14,606	428	4,743	90	339	8	85	143	493	607	43,760
January.....1935	71	86	9,867	550	5,141	152	13,260	858	3,513	114	380	10	42	127	308	280	34,759
February.....1936	57	88	14,978	510	5,556	170	12,226	758	4,365	107	217	4	62	134	408	661	40,301
February.....1935	41	54	11,701	499	3,271	113	14,330	570	3,174	63	292	10	34	107	217	321	34,797
March.....1936	88	127	19,511	634	6,753	205	16,168	1,551	5,395	184	264	17	73	221	477	762	52,430
March.....1935	56	67	13,744	534	4,284	132	16,805	850	3,673	100	389	14	60	135	258	410	41,511
April.....1936	121	179	23,323	784	8,818	271	18,493	2,733	7,308	289	379	21	112	327	700	1,099	64,957
April.....1935	79	109	15,024	568	5,708	177	17,943	870	4,554	159	449	31	62	189	309	554	46,785
May.....1936	109	168	21,443	754	8,507	275	17,971	3,045	6,704	440	399	16	116	358	719	1,159	62,183
May.....1935	78	97	16,284	570	5,381	193	17,591	883	4,807	189	616	5	60	229	294	691	47,968
June.....1936	96	137	19,045	660	7,777	287	16,930	2,820	6,151	427	325	28	113	320	599	1,136	56,851
June.....1935	73	113	17,576	572	4,911	178	17,385	901	4,710	103	439	16	69	218	258	721	48,243
July.....1936	137	207	21,553	846	8,153	280	18,639	3,501	7,167	492	382	22	132	361	748	1,075	63,695
July.....1935	99	114	18,608	593	5,336	202	18,073	857	5,308	147	439	19	85	219	336	808	51,243
August.....1936	139	163	20,931	801	8,298	251	16,426	3,070	6,314	434	322	39	126	320	635	953	59,222
August.....1935	91	143	18,554	591	5,723	219	16,429	1,312	5,231	145	476	9	94	264	354	720	50,355
September....1936	124	138	15,589	826	7,957	244	17,044	3,209	6,640	424	521	17	141	327	645	765	54,611
September....1935	75	106	13,271	529	5,635	196	13,715	1,307	4,963	81	385	9	90	167	350	511	41,390
October.....1936	160	155	7,947	987	7,541	260	11,666	2,788	6,642	509	529	38	135	347	810	693	41,207
October.....1935	92	129	9,150	557	6,822	198	12,362	907	5,350	136	412	17	94	209	544	460	37,439
November....1936	180	134	10,089	688	5,313	230	5,178	1,284	4,881	399	254	37	99	205	657	594	30,222
November....1935	89	116	10,875	378	4,642	227	14,191	783	4,136	137	273	17	91	137	436	407	36,935
December....1936	165	105	14,811	765	4,415	234	11,897	1,793	5,648	431	296	30	86	216	571	742	42,205
December....1935	157	111	12,475	513	4,634	203	13,764	1,344	4,052	141	551	17	99	99	502	596	39,258
Twelve Mos...1936	1,451	1,695	204,344	8,750	85,295	2,930	177,244	26,980	71,958	4,226	4,227	277	1,280	3,279	7,462	10,246	611,644
Twelve Mos...1935	1,001	1,245	167,129	6,454	61,488	2,190	185,848	11,442	53,471	1,515	5,101	174	880	2,100	4,166	6,479	510,683
%Change..12 Mos.	+45	+36	+22	+36	+39	+34	-5	+136	+35	+179	-17	+59	+45	+56	+79	+58	+20

"You can't fool a fleet of trucks"



LABORATORY tests are valuable . . . but fleet operators know a more practical test for motor oil . . .

Simply put it in a fleet of trucks or buses and give it hard work to do!

Low quality oils generally show up in higher costs due to excessive carbon and sludge formation—because non-lubricating and waste materials have not been thoroughly removed in refining.

Better quality and more thoroughly processed oils prove their economy in the long run through definitely lower operating and maintenance costs.

That's why we say—put Gulfpride in your fleet and *watch what happens!*

For we know that when you use Gulfpride, two things take place:

1. Maintenance costs will go down.

2. Oil mileage will go up.

The reason for this is Gulf's exclusive Alcholor process—the only one of its kind in the world—a process that gets out of an already highly-refined Pennsylvania oil waste that would otherwise form carbon, gum and sludge in your engines.

Why not prove this for yourself—in your own units—as so many other fleet operators are doing?

Gulfpride

Reg. U. S. Pat. Off.

The world's finest motor oil



Gulf Oil Corporation
Gulf Refining Company
Pittsburgh, Pa.

New Products

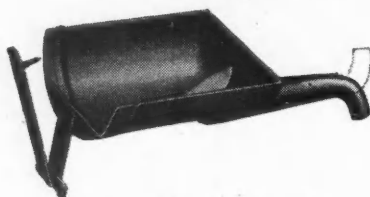
ON PARADE



Hypoid Lubricator

TWO new types of dispensers for canned hypoid gear lubricant are available by the Huffman Mfg. Co., Dayton, Ohio. These are the No. 60 hypoid pressure lubricator, and the No. 65 and 66 hypoid gravity lubricators. The spouts of both types will clear the lubrication opening of any 1937 car.

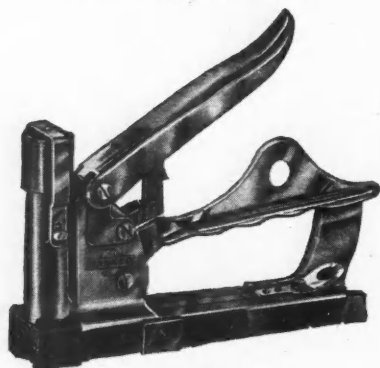
The Huffman lubricator fits one, two, three or ten lb. cans. The knife cuts a circular opening in the top of the lubricant container, and the pump barrel is sealed to the top of the can by a three-quarter turn to the right. A pump forces the lubricant up through the delivery tube.



Huffman hypoid lubricator

Tacker-Stapler

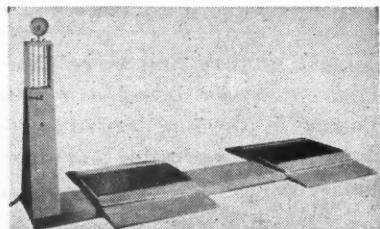
THE A-L Tacker announced by the A. L. Hansen Mfg. Co., Chicago, has neither anvil nor mandrel, does not use a long- or short-throat attachment, but is simply a tacker that deflects the staples when driven and forms a near-clinch, or completely clinches the staple when driven against a solid metal surface. As the staple leaves the machine, it is deflected by means of beveled jaws. The angle at which the staple is driven increases with the depth to which it enters materials tacked or fastened. The angle of the legs of the staple sets up resistance against removal and serves the same purpose as a staple driven by a stapling machine. Thus the tacker becomes also a stapler, for it combines the utility of one with the facility of the other.



Hansen tacker-stapler

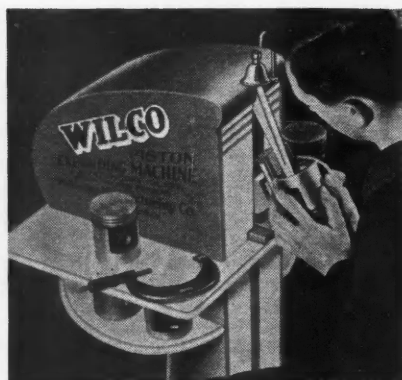
Shurtest Brake Tester

SHURTEST MFG. CO., 5724 Armitage Ave., Chicago, has a new brake testing machine. It is made in two sizes, Model A-1 being for pleasure cars and light delivery trucks, and Model B-1 for all types of trucks. The machine consists of two tables, and a tower at one end in which is housed an electrically driven hydraulic pump. Two gage glasses record the braking effort of each wheel, and the circular gage records the test applied to the front wheels to assist in equalizing the rear wheels. In operation, the vehicle is driven onto the machine, the brakes applied, and the hydraulic pump in the tower started. The pump is connected to the tables in which are located hydraulic cylinders, which, when pressure is applied by the pump, operate to move the tables, which records the braking power of the wheels.



Shurtest brake tester

Wilco piston expander machine



Piston Expanding Machine

THE new Wilco piston expanding machine is offered by the Wilkening Mfg. Co., Philadelphia, as a scientifically accurate method of expanding and reshaping pistons. With it, iron as well as alloy pistons may be resized. Control of the expansion of each piston is so close that it permits perfect fitting. The expansion thus obtained is said to be permanent, and is not destroyed by heat or mechanical distortion. Pistons of any design or material can be handled in all sizes.

In addition to expanding used pistons, the Wilco machine may be used to expand new pistons ground undersize by error, or to "cam" new pistons when cam-grinding facilities are not available.

In peening a piston by the Wilco method, the piston skirt is measured with micrometer before and during the peening operation so that the peening or reshaping can be stopped exactly when the desired shape and size are obtained.

Sterling Sander

STERLING PRODUCTS CO., 2457 Woodward Ave., Detroit, Mich., announces an improved air-driven Speed Bloc Sander. The weight of the new model has been reduced from 7½ lb. to 5½ lb. This weight reduction plus the compact dimensions of 7 in. long, 4¼ in. high and 3¼ in. wide provide a comfortable fit to the hand.

The Sterling air motor is of patented design. The machine operates efficiently on 45 to 60 lb. of air pressure, using approximately 6 cu. ft. per minute under load.

For wet work a water connection is provided for attaching a hose with an outlet on either side of the machine that directs a spray of water, which is readily adjustable to the surface being sanded.

Champion Filter

CHAMPION truck type filter is low in first cost at \$6.25 list, complete, and serviced at minimum expense with Champion replacement cartridges at 60 cents list. The Champion drawn steel removable sump, one-piece head casting and mounting bracket are of sturdy construction. The filter sump is easily demountable from the top casting, sump is cleaned and the replacement cartridge is installed without disturbing any connections.

[More Products on Page 84]

Sterling sanding machine



PLYMETL

BEST *for* BIG BODIES

The bigger the body, the bigger the need for Plymetl. Because Plymetl panels are structural units and support themselves, they do away with the need for many supports ordinarily used, and actually make big bodies larger. So light are the large sizes that they do not penalize power-capacity.

Moreover, each steel face is stretcher-leveled, and thus not only eliminates highlights and distortions but gives enviable smoothness to every paint job.

Plymetl for big bodies is a sure road to larger capacity and more economical operation.

PLYMETL

is *stiffer*

and **FLATTER**

Consult our engineering department for material estimates to fit your needs and specifications.

PLYMETL
is *stronger*
yet *lighter*



PLYMETL BODY BUILT BY HULET TOP & BODY CO.

OFFICES IN CHICAGO • DETROIT • NEW YORK

HASKELITE MANUFACTURING CORPORATION

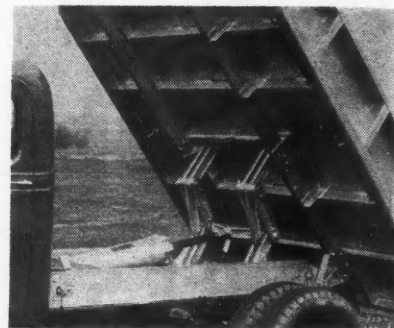
208 WEST WASHINGTON STREET • CHICAGO, ILLINOIS

New Anthony Hoists Have Constant Push

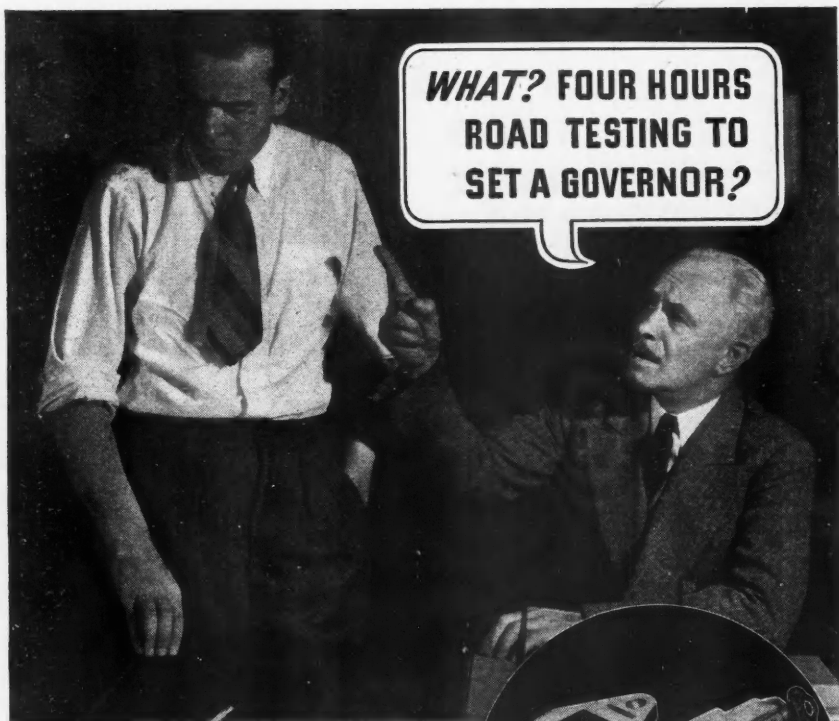
THE Anthony Company, Inc., Streator, Ill., has in production two pipeless hydraulic hoist series—the "Z" and "K," which are in addition to its present line of hoists. Power, speed and constant low oil pressures are the features of these two series.

The diagram showing the black sec-

tion of the hoist indicates how lifting energy is transmitted from cylinder to body and load through a double arm center lift. At the beginning of the dumping cycle where the load is heaviest and up to 20 deg. of tipping angle super-power is secured by using a long piston stroke and powerful leverage



Illustrations are of the "Z" series hoist (top) and the "K" series (bottom). The drawing below illustrates the tipping angles



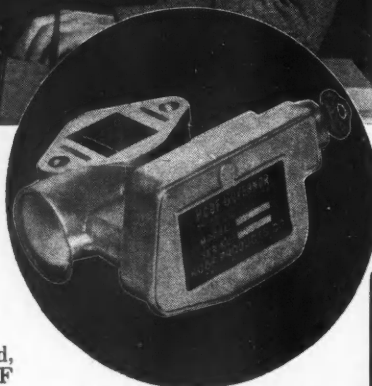
"CAN'T WE BUY GOVERNORS PRE-CALIBRATED AND SET AT THE FACTORY?"

● Through the most determined, painstaking scientific research, HOOFF engineers have developed a method by which HOOFF Governors can be calibrated and set on a dynamometer for pre-calibrated road speed . . . at the HOOFF factory. This special and exclusive service eliminates time-consuming, costly delays in driving trucks into the country to set governors . . . and also prevents favoritism being shown to certain drivers. Although HOOFF governors cost twice as much to build . . . because of superior materials, construction and design . . . their use by fleet operators saves many times their cost over other makes. In addition, there are seven other exclusive advantages of HOOFF governors definitely geared to the needs of all fleet owners where accurate operating cost records for fleets are kept. Write for details!

HOOFF PRODUCTS COMPANY

CANTILEVER GOVERNORS

162 NO. FRANKLIN STREET, CHICAGO, ILLINOIS

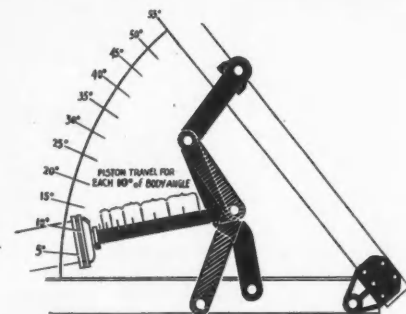


Three Advanced Types of HOOFF Governors

A.C.H. "Seal-Type" Governors . . . protected by the tamper-proof HOOFF Seal.

HOOFF "Key-Type" Governors . . . speed can be changed only by person having key.

HOOFF "Dash-Control" Governors . . . Speed can be changed from the dash only by holder of key.



porates such features as the automatic shaker, three-way control valve, long heavy recoil spring in cylinder to speed return of body, piston has four step-cut rings in separate grooves, the Anthony floating gear non-thrust pump and universal mounting.

The "K" series hoist is available for truck chassis up to 7-ton rating and with body capacities up to 15 tons. These hoists have the same function as the "Z" series hoists, but because of longer length bodies and to retain the center lift principle, longer piston stroke is required with compound leverage.

HOW TRUCKS RUSHED FOOD TO STRICKEN FLOOD AREA



... Trucks Loaded in Double-Quick Time ...

By LOWELL THOMAS

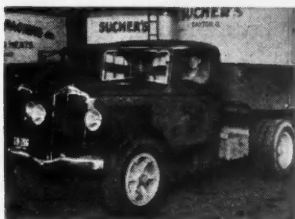
"Famine threatened. Flood-made lakes covered homes, stores, restaurants. Hundreds of thousands of homeless fled the mad Ohio River. By phone, wire and radio came frantic appeals for aid.



"To supply food to dozens of Indiana, Ohio and Kentucky cities the Chas. Sucher Packing Company of Dayton kept its fleet of 34 trucks running 24 hours a day. It was load up and drive, load up and drive with not a minute to waste. Through driving rainstorms and blinding sleet the trucks fought their way. Tires found a footing on roads half washed away. There was a terrific strain on driver, truck and tires. 'Believe me, it's in times such as this when human lives are

at stake that freedom from tire trouble is really appreciated.' These trucks all roll on Goodrich Triple Protected Silvertowns. And Silvertowns carried them through the emergency without a single tire delay.

Lowell Thomas's story is typical of truckers' experience with Goodrich Silvertowns. For the big loads, on the hard hauls,



...Ten Tons of Meat Ready to Roll...

where minutes count—you usually find Silvertowns. It's because of a special construction—Triple Protection—that checks 80% of all premature failures. This development

means greater freedom from tire trouble—prevents side-wall breaks and blow-outs, increased mileage, lower repair bills. Money saved.

Here's why. All Silvertowns for trucks have this extra protection built into the heart of the tire:

- 1 **PLYFLEX**—distributes stresses throughout the tire—prevents ply separation—checks local weakness.
- 2 **PLY-LOCK**—protects the tire from breaks caused by short plies tearing loose above the bead.
- 3 **100% FULL-FLOATING CORD**—eliminates cross cords from all plies—reduces heat in the tire 12%.

NO EXTRA COST

There's the tire you should have for your trucks—whether you haul lumber, dirt, laundry or milk. It will save you real money. Naturally, it costs more to build a tire

with Triple Protection. But it costs you nothing extra. Ask any Goodrich dealer for prices.

Read What Mr. Sucher Says

Charles F. Sucher, President of the Chas. Sucher Packing Co., says, "We find that Triple Protection does everything that is claimed for it. We have not had a single premature failure with Goodrich Silvertowns. For nine months our total tire repair bill for 34 trucks was only \$65.75."



Goodrich *Triple Protected* Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

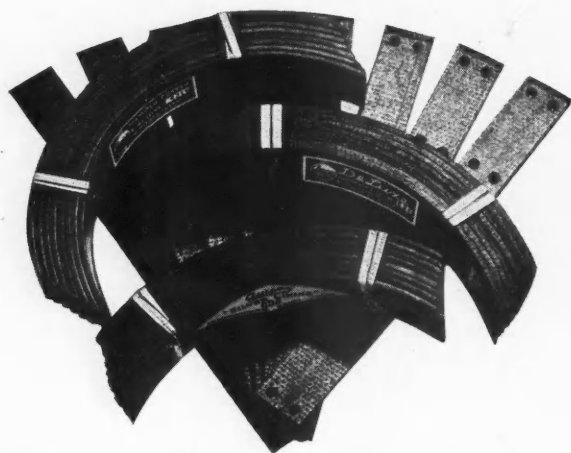
COMMERCIAL CAR JOURNAL
MARCH, 1937

Hydraulic Brake for 1½-Ton Fords

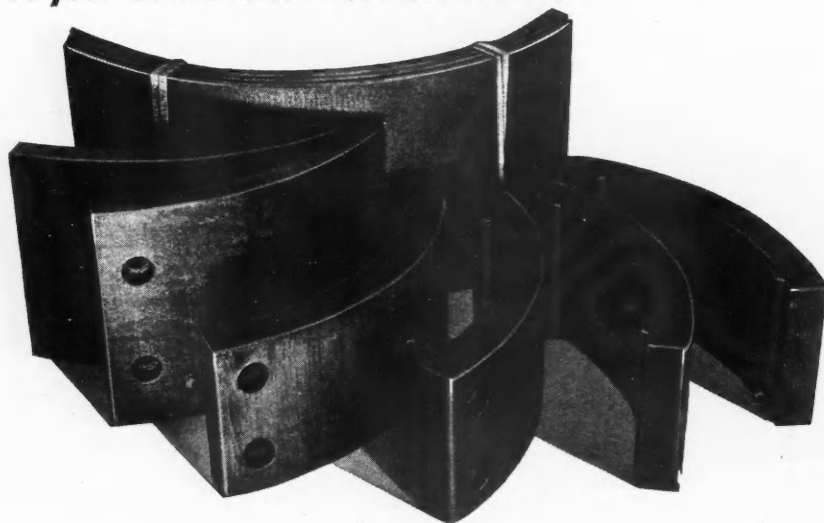
A COMPLETE low-priced vacuum-hydraulic brake kit for Ford 1½-ton trucks and buses has been announced by Linderman Devices, Inc., New York. The kit comprises four Linderman wheel brakes, hydraulic control cylinder, vacuum booster, and all tubing valves, brackets, etc., needed—ready

for installation. Brakes for the rear wheels are designed to include the standard Ford emergency brake hook-up with separate shoes thus providing two complete braking systems.

Brakes at the wheels alone can be furnished in case it is desired to use direct air pressure for brake opera-



ONE complete line services all fleet requirements! Trucks, trailers, tractors, pickups, passenger cars can all have AMCO brake linings, equally efficient for greater mileage, safety, performance, yet each individually engineered for its particular duty. Try AMCO on one of your cars and the rest will follow.

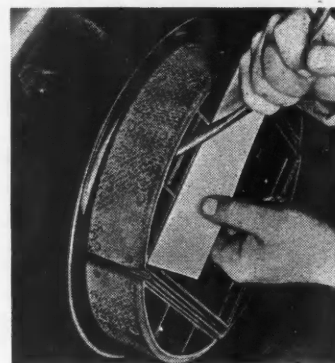
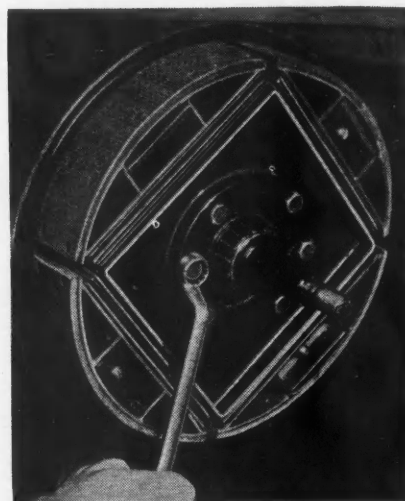


**BLOCKS
SHOES
ROLL LINING
SEGMENTS**



**FOR TRUCKS
BUSES
TRAILERS
AND CARS**

ASBESTOS MANUFACTURING CO., HUNTINGTON, INDIANA



Above—The brake bolts to the standard axle flange. Below—Wear adjustment is by means of shims

tion. For direct air operation, intermediate operating cylinders, slack adjusters, etc., are unnecessary with the Linderman brake design, the air pressure being introduced directly into the diaphragms under brake shoes.

In the design of the brakes, provision has been made for the larger braking loads imposed on the rear wheels. This has been provided for by the use of larger diaphragms in the rear as compared with the front brakes.

To install Linderman brakes the standard brakes, including backing plate, are removed from the axle flange. Linderman brakes bolt directly to the same axle flange. No changes are necessary in hubs or drums.

The mechanical service brake linkage is removed from the vehicle and the pedal connected to the Bendix booster which is of the "pull" type, specially designed for Linderman brakes. Emergency brake linkage is retained and connected to the Ford emergency shoes built into the unit.

No adjustments are provided for equalization since brakes cannot be un-equalized. Take-up for lining wear is by means of shims under the floating self-centering shoes. Relining of shoes is expedited without requiring removal of any nuts, bolts or pins.

EXPECT MORE

from a **GMC TRAILER**



—You can expect more from GMC trailers because they have more than a score of important quality features of design that set them apart as values that buyers cannot afford to overlook. Contributing to GMC unmatched economy, reliability and long life are such important advantages as: unusually rugged spring suspension to withstand the strains of severe

service; exceptionally sturdy frames with protective reinforcement at critical points; long-wearing cast brake drums; heavy cast steel support legs with husky wheels and a folding type handle for quick, easy operation. Your nearest General Motors Trailer dealer has the complete facts and will welcome an opportunity to discuss your trailer needs.

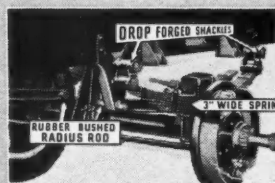
For complete information write or wire

GENERAL MOTORS TRUCK & COACH

DIVISION OF

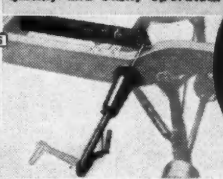
YELLOW TRUCK & COACH MANUFACTURING COMPANY, PONTIAC, MICHIGAN

THE TRAILER OF VALUE

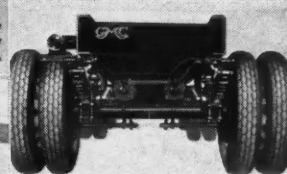
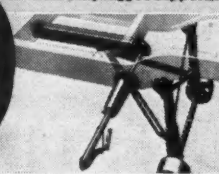


Rubber-bushed radius rods, drop forged shackles and wide springs are quality GMC features.

Folding type crank handle is readily accessible and is quickly and easily operated.



Ample strength to meet every load condition is provided by the unusually rugged supports.



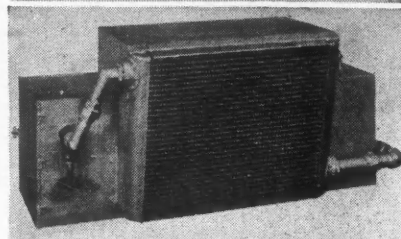
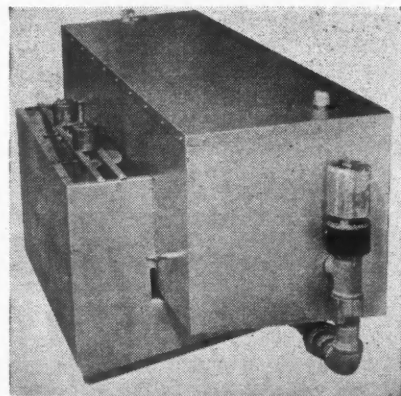
Exceptional frame strength; tubular axle for greater rigidity; double-line vacuum brakes.

GMC

Cooling Unit for Trucks Uses Dry Ice and Alcohol

A DRY-ICE, thermostatically controlled refrigerating unit for trucks has been developed by The Liquid Carbonic Corp., which under test conditions has maintained payloads of meat and fish at temperatures ranging from 27 to 45 deg. Fahr. during trips on which outside temperatures in some instances were 105 deg.

In this refrigerating unit dry ice chills alcohol, which circulates on the thermo-syphon principle through a system containing a cooling surface similar to that of an automobile radiator. Small electric fans blow air drawn from the upper part of the truck's interior downward through this cold radiator-like section onto the payload,



Showing rear and front views of the thermostatically controlled refrigerating unit



it's the greater
value you get
that makes this
higher priced axle
for trailers an economical investment.

**TIMKEN
TUBULAR
TRAILER
*Axle***

it's exactly the axle a trailer needs, in this day of competitive transportation—stronger, more rigid, definitely better.

Nobody knows this so well as operators, wise from experience, who have tried both cheaper axles and the Timken Tubular Trailer Axle.



THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan

running constantly to insure distribution of proper temperatures.

As the chilled alcohol is warmed by the air blown through the radiator, it automatically rises in the circulatory system, and its place is taken by colder alcohol newly drawn from the bottom of the insulated dry ice compartment.

This process continues until the air temperature in the truck falls to the level at which the thermostat has been set, at which point a valve closes and the alcohol ceases to circulate until the gradually rising temperature opens the valve again.

The entire refrigerating unit has an overall length of 52½ in., a height of 24½ in. and a width of 22½ in. It mounts on angle-iron uprights at the forward end of the truck's interior in such a manner that it will not occupy space required by the payload. Two sizes of refrigerating units are available. One with a capacity of 200 lb. of dry ice, and the other accommodating 100 lb.

Humidity entering the truck's interior when the doors are opened condenses on the unit, and not on the load, which remains cold and dry.

Convention

The 1937 convention of the American Trucking Associations, Inc., will be held at Louisville, Ky., November 15-17.

Correction

It was incorrectly stated in the January issue of *COMMERCIAL CAR JOURNAL* regarding the Stewart truck description that model 45A had 6.00/20 dual rears as standard. This should read 6.00/20 single rear as standard with duals at extra cost.

**COMMERCIAL CAR JOURNAL
MARCH, 1937**



How many miles do you take out of your *Tire Package?*



STRONGER—All plies are *full* plies anchored at the bead—no floating “breaker strips”—every inch and every ounce is there for just one purpose—to produce more miles and a lower cost for you.

COOLER—They flex uniformly without that heat-producing “hinging action” of ordinary breaker-strip tires. Heat kills the life of cords and cuts down the miles in a tire. Generals are *cool*—that’s why they run more miles at a lower cost for you.

“COMPACT RUBBER” TREADS—All tires stretch due to fatigue in the fabric, but Generals, having no idle, half-way plies, stretch least of all. The tread is kept compact and compressed against the road—that’s why it produces more miles and reduces your cost.

● The value of any package of merchandise cannot be determined except through use. Tires, too, are packages—packages of mileage.

The cost of your tire package can never be determined until the mileage of that tire is run. The initial price is unimportant. To determine cost you must divide

price by mileage.

It costs more to build a General Truck Tire because of the way it is built. Thousands of truck operators know it costs less to use Generals because of the way they perform.

General Truck Tires have always been built stronger, to do their work

better and deliver greater mileage.

Your General Tire dealer offers you the benefit of his factory-training and practical truck tire knowledge. He may be able to reduce your tire costs materially.

THE GENERAL TIRE & RUBBER CO., AKRON, O.
In Canada—The General Tire and Rubber Co. of Canada, Limited, Toronto, Ontario

THE TRACTION
TREAD

THE
HIGHWAY

THE COMMERCIAL
DELIVERY

THE CLEATED
TRACTOR

THE
JUMBO

THE
ALL-GRIP



One of the most complete lines in the business—each tire built to give you more miles for less money

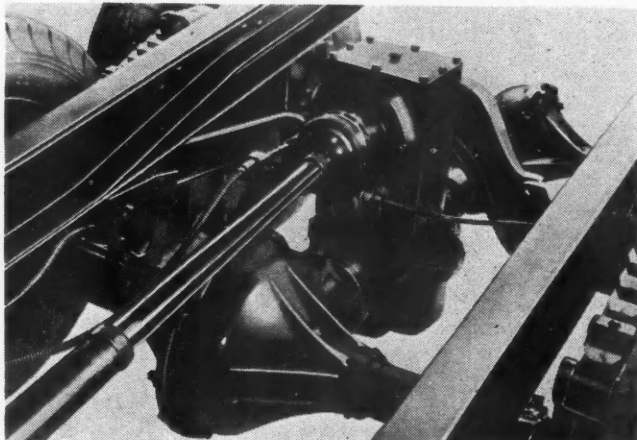
GENERAL TRUCK TIRES

Grico Two-Axle-Drive

The Gear Grinding Machine Co., Detroit, Mich., has announced the 1937 Grico two-axle-drive unit for light trucks. In the new axle the transfer case is completely separated from the frame. It is rigidly bolted to the forward driving axle and supported at the rear by a telescoping torque tube which is bolted to the rear driving axle. Driving and braking torque reactions are taken through the lower portion of the case, adapter flange and telescoping torque tube.

A heavy channel section steel cross member is rigidly bolted to each trunion bracket and carries the load from the frame to the springs. Mounted on the propeller shaft ahead of the forward driving axle are two Rzeppa constant velocity universal joints which permit freedom of action up to 38 deg. angularity. This is in excess of the requirements of the axle.

The entire unit is 50 lb. lighter in weight and gear noise has



DIETZ SAFETY LITES & SIGNALS Meet I.C.C. Safety Regulations

DIETZ



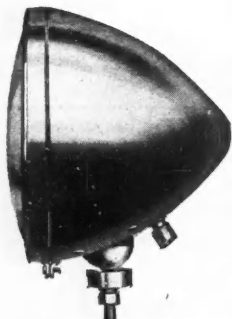
REAR VISION
MIRROR

DIETZ RELIABLE QUALITY AND MODERN STYLING

THE I. C. C. Safety Regulations cover universal requirements that are sufficiently permanent to make best quality equipment the most economical.

The Dietz reputation for quality and up-to-dateness goes back nearly a century. Dietz products always measure up to the standard of quality that promotes safety, and assures lasting wear and economy.

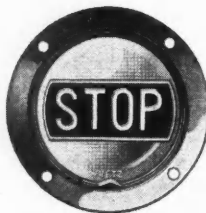
Your Dealer will be glad to show you Dietz Lites or other equipment. You may also find helpful for reference, Dietz complete Catalog of Motor Lites and Signals. Send for it.



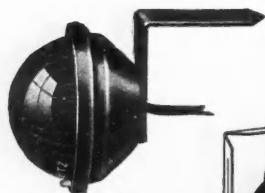
No. 722 HEADLITE



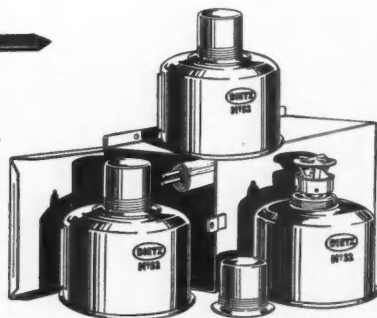
No. 300 FOG LITE
With (D) Bracket



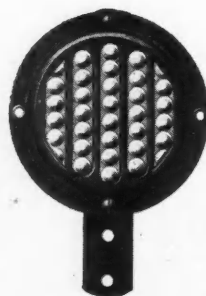
FLUSH MOUNT
STOP LITE



MARKER OR
CLEARANCE
LITE



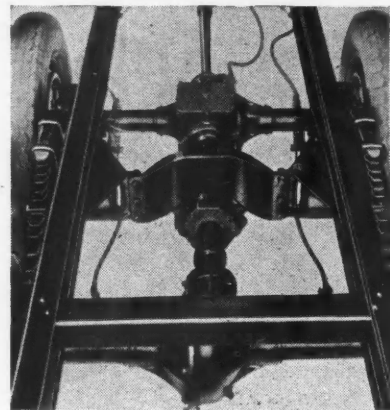
No. 332 FLARE KIT WITH FLAGS



CATAPHOTE
REFLECTOR

R. E. DIETZ COMPANY, NEW YORK
PIONEER MAKERS OF VEHICLE LAMPS, FOUNDED 1840

HEAD LIGHTS • TAIL LIGHTS • MARKER LIGHTS • DITCH, FOG & SPOT LIGHTS • DIRECTION SIGNALS
TRUCK FLARES • REAR VISION MIRRORS • FLOOD LIGHTS • CATAPHOTE REFLECTORS • FIRE EXTINGUISHERS



Above views show mounting of Grico's two-axle-drive

been effectively dampened so that it compares favorably in this respect with a conventional single axle drive. A new design of lubricant seals is used and larger self-aligning propeller-shaft ball bearings are provided.

First-Aid to Water-Logged Electric Tools

John S. Hand, Service Manager of The Black & Decker Mfg. Co. offers the following suggestions to electrical tool users whose equipment may have been under water during the recent floods.

Do not operate electric tools, motors or switch mechanisms until they have been taken down, cleaned and baked out.

Completely disassemble the tool, to get to all parts.

The armature and field should be put into an electric oven and baked for twenty-four hours at a temperature of 275° Fahrenheit.

They should then be checked for shorts and grounds. If O. K., apply a coat of insulating compound and bake again for 12 hours at 275° F.

All fibre switch and brush riggings should be replaced. Most switches will have to be replaced and all taped wire connections should be cleaned and retaped.

Clean all ventilating holes in the case of the tool.

Wash all grease from all gears, housings and bearings, using a suitable fluid. Repack with new lubricant.

YOUR TRUCK PROBLEM

How to Earn More Profit. HERE'S THE SOLUTION



WITH ordinary loads on level roads, a standard truck will do your work and make a profit.



BUT for special service, heavier loads and faster trips, something more is often needed.



TOO OFTEN here's what happens. Power is lacking. Gear splits are not right. The engine "revs" up too fast. Excessive gas or oil is used. Truck life is shortened. But there's a solution. THERE'S A WAY TO MAKE YOUR TRUCK PERFORM!

FILL THE GAPS

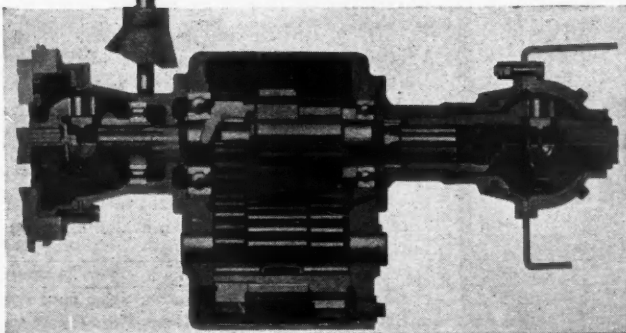
Give your Truck 3-Axle Ratios

When your truck costs are running too high and profits are diminishing, is there a solution? Most certainly, yes. Power and economics can be definitely multiplied by adding more gear ratios so that your truck will have a selective speed to meet any road or load condition. Install a Watson-Brown-Lipe Auxiliary Transmission behind your standard transmission. No need to disturb your rear axle. Result—your truck is given 3-axle ratios, 12 speeds forward and 3 reverse, providing Underdrive, Overdrive and Direct speeds. This is the only unit on the market that so completely provides different speeds. Cost of installation is low. It will be repaid within a short time. You can make faster trips, save oil and gas, save thousands of engine "revs" hourly and add tens of thousands of miles to truck life. Proven by 20 years of service.

WRITE FOR CATALOG

We have prepared performance sheets for most makes and models of trucks. They reveal amazing facts. Please request Catalog and state make of your truck or trucks. Installation service is offered by our authorized Regional Distributors in principal cities.

Model 2231

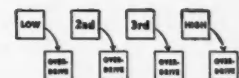


GIVE YOUR TRUCK 12 SPEEDS

These Diagrams Show How WATSON-BROWN-LIPE AUXILIARY TRANSMISSIONS PERFORM



2-SPEED UNDERDRIVE & DIRECT
Gives 8 speeds forward
and 2 reverse



2-SPEED OVERDRIVE & DIRECT
Gives 8 speeds forward
and 2 reverse



3-SPEED UNDERDRIVE, OVERDRIVE & DIRECT
Gives 12 speeds forward and 3 reverse
Gives 3 axle ratios

H. S. WATSON CO., National Distributors

1145 Harrison St., San Francisco, Calif.
Eastern Branch: Box 385, Toledo Ohio

REGIONAL DISTRIBUTORS

Atlanta, Georgia, Truck Equipment Co.
Birmingham, Alabama, Truck Equip. Co.
Butte, Mont., Anderson Motor Co., Inc.
Billings, Mont., Hines Motor Supply Co.
Bozeman, Mont., Hines Motor Supply Co.
Boise, Idaho, Olson Mfg. Co.
Buffalo, N. Y., Truck Equipment Co.
Cambridge, Ohio, Allison Body Sales Co.
Charlotte, N. C., Baker Equip. Engr. Co.
Charleston, W. Va., Baker Equip. Engr. Co.
Chicago, Ill., Erlinder-Platt Sales Corp.
Chattanooga, Tenn., A. Fassnacht & Sons
Chicago, Ill., Truck Equipment Co., Inc.
Columbus, Ohio, Hercules Body Sales Co.
Des Moines, Iowa, Herring-Wisler Co.
Denver, Colo., Timphe Brothers
Detroit, Mich., H & H Wheel Service, Inc.
Fort Wayne, Ind., Allied Truck Equip. Co.
Fort Worth, Texas, Hobbs Mfg. Co.
Great Falls, Mont., Hines Motor Supply Co.
Houston, Texas, Hobbs Mfg. Co.
Havre, Mont., Hines Motor Supply Co.
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Louisville, Ky., Dealers Truck Equip. Co.
Lewistown, Mont., Hines Motor Supply Co.
Milwaukee, Wis., Shadbolt & Boyd Co.
Minneapolis, Minn., Hines Motor Supply Co.
New Orleans, La., John M. Walton
New York City, N. Y., Wheels, Inc.
Newark, New Jersey, Wheels, Inc.
Omaha, Neb., Badger Body Mfg. Co.
Pittsburgh, Pa., Auto Truck Equip. Co.
Phoenix, Ariz., Welch Mfg. Co.
Philadelphia, Pa., Truck Equipment Co.
Portland, Ore., Wheel & Rim Service, Inc.
Richmond, Va., Baker Equip. Engr. Co.
Reno, Nevada, Dennison Equip. Co.
Sheridan, Wyo., Hines Motor Supply Co.
St. Louis, Mo., McCabe-Powers Auto Body Co.
Shelby, Mont., Hines Motor Supply Co.
Spokane, Wash., Roy E. Hotchkiss Co.
Salt Lake City, Utah, Koepsel & Love
Seattle, Wash., A. D. Blackler Co.
Toledo, Ohio, Turner Brake Service Co.
Tulsa, Okla., Braden Winch Service Co.
Washington, D.C., S. J. Meggs' Son

WATSON-BROWN-LIPE

Auxiliary TRANSMISSIONS

"3 AXLE RATIOS ARE BETTER THAN 1"



News

SUMMARY

Sales

Studebaker truck sales in 1936 totalled 6473 units. This is the highest in the company's history. Sales were 34 per cent ahead of 1931, the previous high year, when 4845 units were sold.

January Truck Sales Up 11%; Output Up 10%

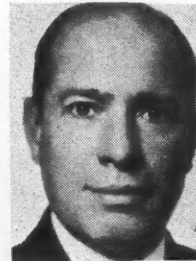
New truck registrations for January, 1937, are estimated at 48,500 units, based on returns from 33 states. This is an increase of 11 per cent over registrations for January, 1936, when 43,760 units were sold. January also shows an increase over the previous month of December, 1936, of 15 per cent when 42,205 units were sold.

Truck production for January was 74,823 units which is an increase of 10 per cent over production for January, 1936, when 67,771 units were produced.

E. C. Fink, vice-president of Mack Trucks, Inc., since 1916, was elected chairman of the board and president of the corporation at a meeting of the board of directors recently.



C. M. Hogarth has been appointed manager in charge of Autocar's new Southern district with headquarters in Richmond, Va. This territory includes branches at Salisbury, Md.; Norfolk, Va.; and Charlotte, N. C.



Elliott Curtiss, Jr., has been appointed editor of *Automobile Trade Journal*, succeeding Don Blanchard, who resigned to take up new duties with the Society of Automotive Engineers.



HOW MUCH ARE
your BATTERIES
COSTING ON AN
MPD
BASIS?



EDISON engineers now give you the answer to greatest battery economy and unfailing electrical service for each individual vehicle in your fleet.

Specification sheets don't give the real facts. It's not the type of vehicle, but the type of service that counts in trucks and motor coaches.

An Edison MPD Survey will show you how to reduce the Miles Per Dollar cost of battery service

for each vehicle in your fleet.

And there is an Edison Highway Transport Battery specifically engineered for every type of truck and motor coach service, as well as for every make and type of vehicle. Husky plates and dual insulation assure you More Power... Longer.

Let us make an MPD Survey of your fleet... or, send for full details of the Edison MPD Survey, without obligation.

Thomas A. Edison, Inc., Emark Battery Division, Kearny, New Jersey

EDISON HIGHWAY TRANSPORT BATTERIES

Thomas A. Edison, Inc., is the only manufacturer in America making all four types of batteries: lead-acid, nickel-iron-alkaline, dry-cell, and wet-primary.

- ☐ We would like to arrange for a free Edison MPD Survey of our fleet.
- ☐ Send us further information about your MPD method of figuring battery economy.

Firm.....

Individual..... Position.....

Address.....

City..... State.....



A PRODUCT OF
Thomas A. Edison
INCORPORATED

Appointments

W. R. Smith has joined the sales staff of the Lincoln Electric Co.'s Los Angeles office, 812 Mateo St.

G. A. McLaury is branch manager and C. R. Stewart is service manager of Autocar's new branch recently opened at Charlotte, N. C.

J. R. Ackerman has been made district representative for Dodge trucks for the Harrisburg, Pa., district. T. C. Utterbeck has been appointed used vehicle representative in Philadelphia, Pa.

H. A. Brittain will be in charge of the newly opened Canadian office of Vacuum Power Equipment Co., at 68 Lombard St., Toronto.

W. E. Bullock has been promoted to vice-president in charge of sales of AP Parts Corp., Toledo, Ohio.

Ray Bishop is now general sales manager of Tropic-Aire, Inc., Minneapolis, Minn. Edmund Burke has resigned.

The advertising agency of Van Auken-Rangland, Inc., has been appointed to handle the account of Bear Mfg. Co.

Harry Miller of race car design fame has joined the research staff of Gulf Oil Corp.

L. G. Mathews has been appointed assistant treasurer of Sealed Power Corp., Muskegon, Mich.

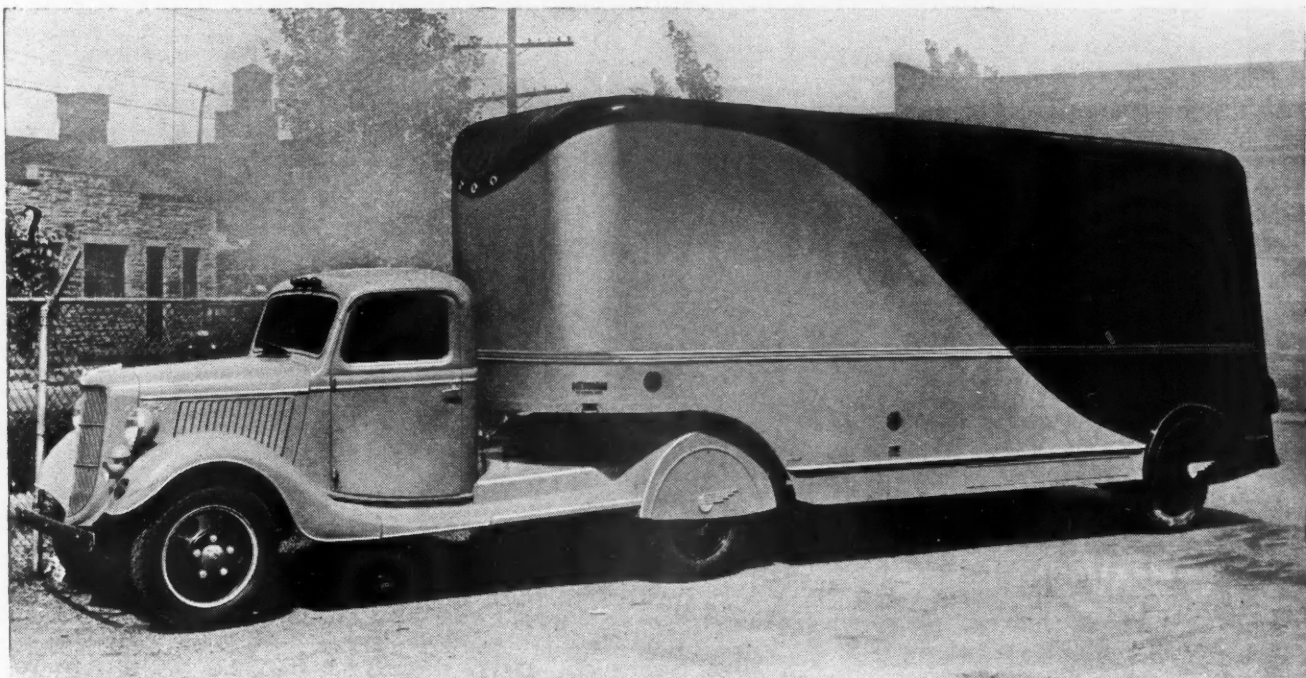
Al Davis has been appointed director of sales of Keeshin Motor Express Co., Inc., for all the systems and affiliated companies.

A. T. Colwell has been named vice-

[More News on Page 94]

"Weight savings up to 40%"

... SAYS ANOTHER SATISFIED **MAN-TEN** USER



WE quote from the catalog of the Herman Body Company, St. Louis, Mo., in which they describe the equipment shown above,—“This new unit design and the application of high strength alloy steels (U·S·S MAN-TEN) enables us to produce low gross weight trailer vans of exceptional strength, style and appearance. *Weight savings over conventional equipment averages around 25% on the smaller units, up to 40% on the larger units.* This exceptional light weight makes it possible and practical

to use a definitely smaller tractor.”

Why haul around unnecessary weight in your equipment? It costs you money every time you move it. Large trucking companies state that each pound of body weight saved is worth one dollar per year in added earning power. Dead weight is a perpetual drag on earnings—trim it off.

Find out about U·S·S MAN-TEN, U·S·S COR-TEN and U·S·S STAINLESS. Let us show you how these superior High Tensile Steels will safely reduce weight without any sacrifice

of strength . . . how they will make your equipment more productive, longer lasting, cheaper to operate, easier to sell.

Write us. Our engineers are experts in the use of High Tensile Steels. They have superintended their use on transportation equipment of all kinds—on streamlined trains, trolley cars, trucks and buses, excavating and road making equipment. Their advice and cooperation is freely at your service in every step from drawing board to finished product.

U·S·S HIGH TENSILE STEELS

AMERICAN STEEL & WIRE COMPANY, *Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*

Columbia Steel Company, San Francisco, *Pacific Coast*
Distributors



United States Steel Products Company, New York,
Export Distributors

UNITED STATES STEEL

MACK

(CONTINUED FROM PAGE 38)

In both models the drive is from a dry, single-plate clutch through a five-speed transmission which is built as a unit with the engine. Direct drive in fifth, or an overgeared fifth speed is optional.

Final drive on the smaller EM is of the single reduction spiral bevel type, with three optional ratios of 5.43, 5.86, 6.33. On the EQ, Mack Dual Reduction Drive is used, with six ratios ranging from 6.31 to 9.79. Both rear axles are full floating with Hotchkiss drive.

Four-wheel brakes on the new mod-

els are direct mechanical of the internal expanding type and are vacuum booster actuated. Total foot brake area on each model is 468 sq. in.

The chassis frame on both models is of pressed carbon steel. It is 9 1/16 in. deep, 9/32 in. thick and has a 3 1/4 in. flange. It is staunchly braced by three pressed steel, deep flanged box girder cross members.

Spring suspension is by exclusive Mack rubber shock insulators. Hou-daille shock absorbers at the front are standard equipment. Mack archi-moid steering gear with a ratio of 18 to 1 provides exceptional steering ease.

YOU CAN BEAT BAD ROADS WITH FULLERS IN YOUR TRUCKS





FULLER Transmissions give you three quiet driving speeds . . . two lugging speeds . . . two reverses . . . a perfect combination of road speed plus hauling power. FULLERS, moreover, have an extra margin of strength in every working part that assures more miles of trouble-free service. Choose trucks with FULLER Transmissions. It pays!



MODEL 5A62—Large capacity transmission for heavy duty trucks, tractors, and busses. Ideal for tractor installations. Option of direct on fifth or overdrive.

FULLER MFG. CO.

KALAMAZOO, MICHIGAN

Complete CCJ Truck Specifications Will Be Published in April

MAKE AND MODEL	GENERAL (See Keynote)					TIRE SIZES		ENGINE DETAILS							TRANSMISSION		REAR AXLE			FRONT AXLE		BRAKES					FRAME					
	Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight with Max. Tires	Chassis Wt. (Stripped)	Standard Front and Rear	Maximum Tire Size Furnished	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M.	Number, Diameter, and Length	Governor Standard	Make and Model	Forward Sp'ds	Make and Model	Gear and Type	Drive & Torque	Gear Ratio	Range in High	Make and Model	SERVICE					C-A Dimension (Std. W. B.)	Side Rail Dimensions	Type
																									Make Location	Operat'n Type	Lining	Drum	Drum Material				Hand Location	Type
Brookway 83 2	1195	138	170	.....	4100	6.50/20D	7.50/20	Con 25B	6-3 1/2 x 4 1/2	244	5.7	171	84-3250	4-2 3/4 x 10 3/4	N WG T9	4 Tim 53521H	SF	H 5.66-6.6	Tim 30000H	LAIHV	255	402 a	TX	65 1/2	7 1/2 x 3 1/2	L					
Duplex L	9600	184	Op	40500	10500	11.25/24D	12.50/24	Bud LO625	6-4 1/2 x 5 1/2	525	.....	385	135-2400	7-3 1/2 x 11 1/2	Y BL 7341	12 Tim 7973BW	W/2	R 7.97-12.1	Shu 639	W41A	.....	c	TD	98	10 1/2 x 3 1/2	C				
Federal 1-1 1/2	630	128	164	.....	3500	6.00/20S	7.00/20	Her QXB3	6-3 1/2 x 4 1/2	205	5.2	134	57-2500	7-2 1/2 x 10 3/4	N WG T9	4 Tim 53521H	SF	H 5.66-6.6	Tim 30020H	LAIH	262	402 a	TX	61	7 1/2 x 3 1/2	C					
Mack, Jr. (*) 21MT	1295	105	190	13000	3890	6.00/20D	8.25/20	Own MR228	6-3 1/2 x 4 1/2	228	5.4	150	74-3000	7-2 1/2 x 10 3/4	N Own MR1D	4 Own MR13	2F	H 5.28-6.6	Own MR21	LAIH	338	366 c	TX	61	7 1/2 x 3 1/2	C						
Mack, Jr. (*) 31MT	1395	105	190	16000	4175	6.50/20D	8.50/20	Own MR268	6-3 1/2 x 5	268	5.2	175	85-3000	7-2 1/2 x 10 3/4	N Own MR2B	4 Own MR15	2F	H 5.28-6.6	Own MR31	LAIHV	410	523 c	TX	84	9 1/2 x 3 1/2	C						
Mack EJ	1750	158	194	16000	5350	6.50/20D	8.25/20	Own EJ	6-3 1/2 x 5	288	5.6	190	84-2500	7-2 1/2 x 10 3/4	N Fu 5433	5 Tim 54411H	SF	H 4.86-6.80	Tim 52502H	LAIHV	329	650 a	TX	84	8 1/2 x 3 1/2	T						
Mack EM	2950	158	194	20000	7350	7.50/20D	9.00/20	Own BG	6-3 1/2 x 5	310	5.6	202	100-2500	7-2 1/2 x 10 3/4	N Own BF	5 Own BF	SF	H 5.43-6.33	Own EM	O4IMV	468	750 a	TX	84	9 1/2 x 3 1/2	T						
Mack EQ	3450	158	194	23000	7650	8.25/20D	9.75/20	Own CU	6-3 1/2 x 5	304	5.9	207	100-2800	7-2 1/2 x 10 3/4	Y Own BF	5 Own FD	2F	H 6.31-8.64	Own EQ	O4IMV	468	750 a	TX	84	9 1/2 x 3 1/2	T						

Diesel Pump by Timken

(CONTINUED FROM PAGE 40)

of the pump, meshing with precision cut gears on the upper ends of the driving sleeves. The upper or driving sleeve for each piston may thus be rotated on the barrel of the pump. This upper sleeve is tongue and groove connected with the lower sleeve, which fits on the piston. As the upper sleeve is rotated on the barrel, the lower sleeve rotates the

piston, thereby changing the position of the helix to the relief port.

Surrounding these sleeves are light helical springs that serve to retract the pistons and hold the driving sleeves in position. The tappet cup, which is the latest automotive barrel type, is so designed as to provide a minimum of wearing surface between the cam and the pump plunger and is made of a new type graphitic steel. This steel, which contains free graphite, can be heat-treated to provide the extremely hard wear resisting surface desired and the graphite acts as a lubricant.

The tappet and spring design is such

as to eliminate the need for an adjusting screw between the plunger and the spring, the tappet cup adjustment depending upon the accuracy of the parts. This is not subject to field adjustment. The tappet spins, holding wear to a minimum. Likewise it permits the installation of a safer spring.

TO adjust the individual metering sleeves on the plunger the rack rod is provided with a series of detachable rack sections which mesh with the gears of the metering or driving sleeves. These are adjusted longitudinally on the rack rod and locked in position by two screws with conical ends. The space between the screws is less than the space between the conical recesses in the movable sections, thus enabling the sections to be moved in slight but definite and positive increments as the screws are tightened and loosened. Provision is made at the back of the pump housing to set these blocks, which should only be done at the factory or by an authorized service man.

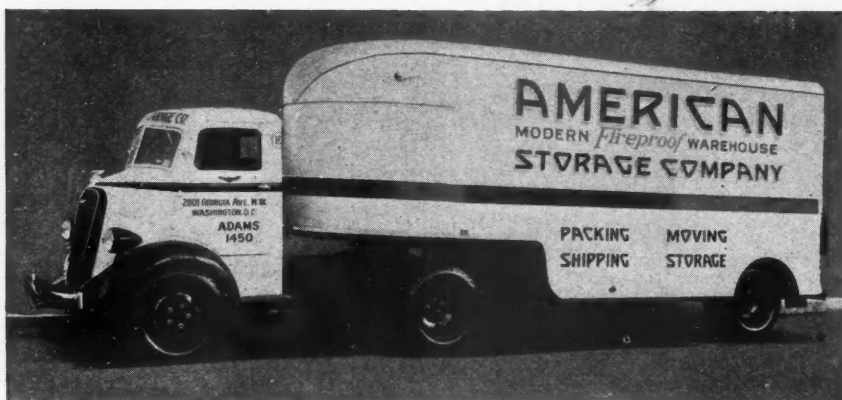
A special stop is provided in connection with the rack rod which controls the metering sleeves whereby the maximum amount of fuel delivered to the engine may be definitely limited. At one end of the rack a knurled nut controlling the stop is provided by means of which the maximum amount of fuel can be limited according to the altitude at which the engine is working. A series of cotter pin holes is drilled through this nut, the space between each hole representing the change required in adjustment for a 1000-ft. change in altitude.

THE toothed rack sections of the piston rotating mechanism may be quickly removed and replaced when worn or damaged. They may also be adjusted independently of each other to obtain uniform angular adjustment of all pistons without removing the rack bar or dismantling the pump.

As these pumps must operate under pressures as high as 10,000 lb. per sq. in., and clearance between the plunger and the pump barrel is only .000030 in., it is essential that the housing be designed to provide the needed stiffness.

For convenience in installation the fuel injection pumps are all made to fit standard bases and all connecting parts conform to standard dimensions.

The type A or small size pump using a 4-9 mm. range of plungers is adapted for use on Diesel engines up to approximately 150 hp. and operates at speeds up to approximately 4000 r.p.m. The B size, using a 5-11 mm. range of plungers, is ordinarily used on engines from 110 to 250 hp., operating at speeds up to approximately 3000 r.p.m.



BEAUTY THAT IS MORE THAN SKIN DEEP

If you will follow a Met-L-Wood designed and constructed body through the years and compare it with its contemporaries, you will be struck by the freshness and efficiency which it retains after other bodies of the same age have been discarded.

Greater strength without greater weight, plus attention to details and reinforcement for special service, make this difference.

May we tell you how Met-L-Wood will save for you—too?

MET-L-WOOD CORPORATION

6755 West 65th Street

Chicago, Illinois



Willards

COST LESS TO OWN

• because they last longer..crank faster
.. don't let you down

"DUAL RUBBER" INSULATION

A New Willard Development

"Dual Rubber" insulation is the ideal combination for batteries in commercial-car service. It consists of a combination of Willard's exclusive Thread Rubber insulators with special perforated rubber

sheets. Through thousands of months of actual service "Dual Rubber" has proven its outstanding ability to cut costs per mile. Let us send you the evidence. A note will bring it to you by return mail.

WILLARD STORAGE BATTERY COMPANY • CLEVELAND • LOS ANGELES • TORONTO, CANADA
COMMERCIAL CAR JOURNAL
MARCH, 1937



Hein-Werner Hydraulic Jacks appeal to men who are **PRICE WISE and VALUE WISE**

Comparison Is Convincing

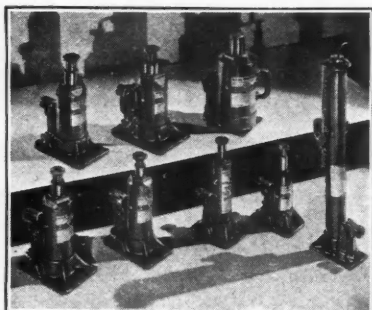
Month after month HEIN MARCHES ON—leading the way to bigger and better business with a complete line of hydraulic jacks that are *built right and priced right*.

The popular 5 ton capacity jack, shown at right, is typical of the modern design, compact sturdy construction, easy action and dependable performance that applies to all Hein-Werner hand jacks for passenger car, truck or bus service.



5
TON MODEL
\$9⁹⁰
NET TO DEALER

Model E5.9A (shown above) is an exceptional value...Low 9"...Lift 6½"...Extension 3"...High 18½"...Weight 24 lbs....Dealer Price \$9.90 (West Coast \$10.60).



FEW MODELS ENGINEERED TO DO THE WORK OF MANY
HEIN-WERNER
hydraulic JACKS

A Complete Line

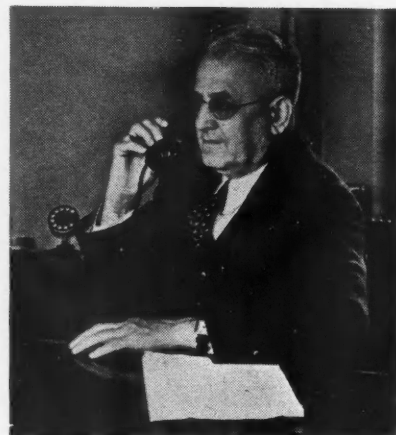
Other models in this line include the "Bullet" Model, 1½ ton capacity at \$2.99 (West Coast \$3.30)... Light Truck Special, 2 ton model \$4.25 (West Coast \$4.70)... For light trucks, 3 ton models at \$7.65 (West Coast \$8.20)... 7 ton models at \$13.15 (West Coast \$14.25)... For heavy trucks, buses and shop use—12 ton models \$19.15 (West Coast \$20.25)... 20 ton models \$33.00 (West Coast \$34.50)—and for modern passenger cars, our new BUMPER-LIFT Model at a new low price of \$4.95 (West Coast \$5.65)... Above prices net to dealer.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

Handling Freight by Wire

(CONTINUED FROM PAGE 23)

patcher must know which trucks or trailers by number will take the load and arrange for that vehicle to make the pick up. He must play a game of checkers and win every time with the trucks that are working on split loads. He must, for instance, if a truck starts out light from Providence, find a load for it to take on before it covers many miles because we do not look kindly upon light or empty miles in this organization. Springfield, Mass., would



Joseph Arbour, president of Consolidated

be a good place to fill out the load and failing in that, Hartford, Conn., would do, but he certainly must not let that truck run into New York without filling out the load if there is any way of avoiding it.

Assisting the night dispatcher are



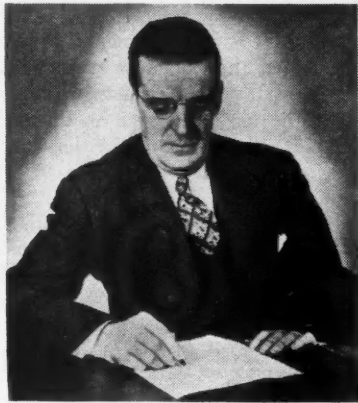
Alexis Scott, secretary and treasurer

three patrolmen who cover the routes in company-owned light trucks. The trucks are equipped with safety devices, spare tires, jacks, flares and lights. One of these patrolmen works out of New York, and when he starts work in the evening he calls the dispatcher and tells him which route he will cover during the night. At any time during the night the dispatcher

COMMERCIAL CAR JOURNAL
MARCH, 1937

can locate the patrolman by phone because he knows where to call and every hour the patrolman calls the dispatcher to report. Between reports the dispatcher knows the points the patrolman will contact such as lunch counters, etc., so he can call ahead and leave word to have the patrolman call in immediately upon his arrival. The New York patrolman works as far north as Bridgeport where his beat ends. At that point another patrolman takes over and covers the Bridgeport to Hartford area and a third patrolman goes north from Hartford to Worcester and Boston.

IT is possible for the dispatcher to get in touch with any of these patrolmen in about 20 minutes. In another 20



John Ghent, vice-pres. and gen. manager

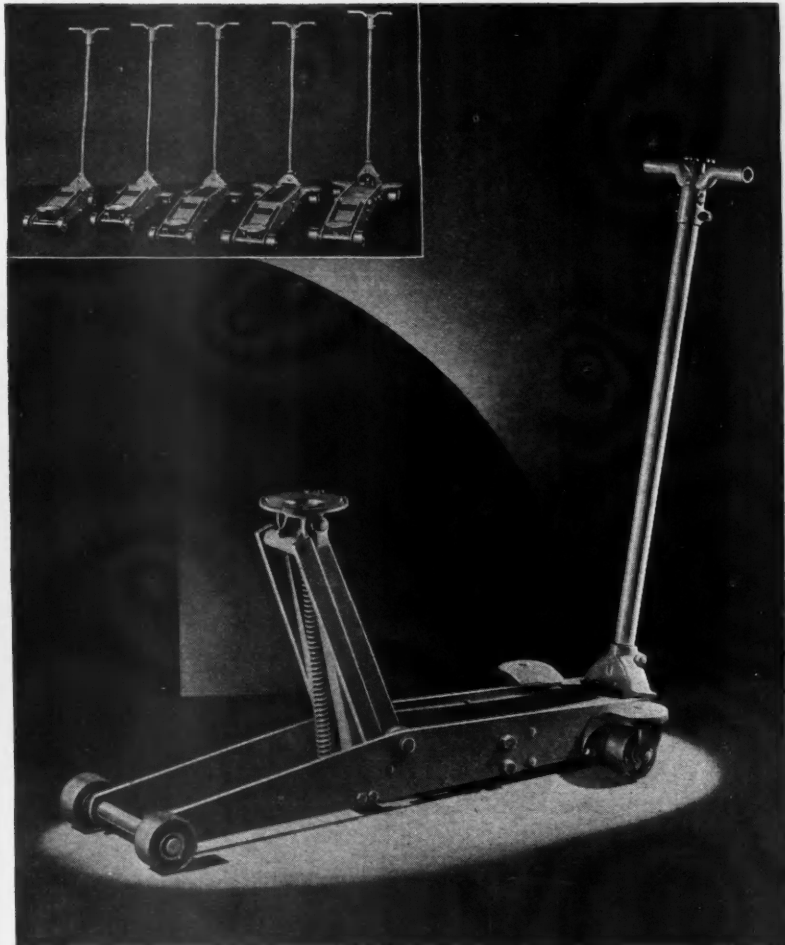
minutes the patrolman can get in touch with any truck in his area. Since the closest of our terminals are an hour apart by truck, it is possible for the dispatcher to re-route a partially loaded truck into a terminal even though it has checked in and out of the last terminal which he will contact until he has passed the terminal where the load is waiting. To make this possible Consolidated drivers must stay on Consolidated routes between terminals. If a truck becomes overdue at any terminal (and every driver and truck are expected somewhere on schedule) the dispatcher sets the machinery in motion to look for him, and it is not long before he knows just where the truck and driver are and what happened to throw them off schedule.

Before the night dispatcher goes off duty, he types a report that shows what trucks by number left what terminals for what destinations. The report also shows how much weight each truck started out with, how much and where it picked up freight and the weight at destination. There are also special notes concerning the load where there is anything of special interest. In addition, the report shows the time of departure and the time that the truck

(TURN TO PAGE 62, PLEASE)

COMMERCIAL CAR JOURNAL
MARCH, 1937

To see the Floor Jacks of tomorrow look at the new H-W Jacks **TODAY!**



5 AMAZING NEW MODELS - - each a leader in its class - -

Keeping pace with present and future needs of the industry, Hein-Werner presents a complete line of hydraulic floor jacks.

All 5 new models have structural steel side members... Low at 4"—and saddle high point at 24½"... 90° stroke on all handles... Saddles are 6½" in diameter.

All models have steel hydraulic units except Model 0324G... All have safety valves and by-passes—and automatic oil level... And all have release valves that can be locked and key removed.

MODEL 0237J—CURB JACK, (with-out swivel wheels)... 2 ton capacity \$29.75 (West Coast \$31.75).

MODEL 0237K—CURB JACK, (with swivel wheels)... 2 ton capacity \$32.50 (West Coast \$35.00).

MODEL 0237L—FLOOR JACK... 2 ton capacity \$37.50 (West Coast \$40.00).

MODEL 0337H—FLOOR JACK... 3 ton capacity \$49.50 (West Coast \$55.00).

MODEL 0324G—FLOOR JACK... 4 ton capacity \$57.50 (West Coast \$63.00).

All prices are net to dealer... Ask for details on these floor jacks—also on complete line of passenger car and truck hand jacks.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

FEW MODELS ENGINEERED TO DO THE WORK OF MANY

HEIN-WERNER
hydraulic JACKS

(CONTINUED FROM PAGE 61)

checked in and out of the key terminals along the route. This report is put on a Hartford bus when the dispatchers change at 7 A.M. and the report is on my desk by 9 A.M. that morning. The whole night's operation is shown condensed on a neatly tabulated form.

The leased wires are used from 12 noon to 1 P.M. each day for a conference of terminal operators and the subject of shortages, overages and damages is taken up. One terminal operator reports a shortage and another terminal man has it as an overage. Naturally the point then is to get the

strayed freight to its correct destination at the earliest possible moment. All of the terminal operators are in on the conference and the result is that our trouble with overages and shortages is only a fraction of what it was before this method of handling was put into operation. Damages have shown a sharp drop, probably due to the fact that such prompt handling will uncover the responsible party stripped of the concealment of time and a reasonable doubt.

We think that this is pretty careful routine, but even so our figures (figures can show many things when you are

used to looking at them) indicate from time to time that something is wrong at some terminal. When this happens Joseph Arbour, founder of this business and president of Consolidated, in charge of operations, swings into action. His particular love has always been operations, dating way back to the time when that was all there was to the highway transportation business.

He now has two field operators to assist him, and when one terminal needs attention Mr. Arbour may assign one of them to move in and take over the terminal until the trouble is located and eliminated, or he may decide to live with the problem himself for a time. In some cases, one of the field operators may just spend the day and hand out some good advice and drop in a few days later for a check up. This phase of the operation is troubleshooting. It is in the hands of the man who started this business and the rest of us never attempt to disturb the man because he has his finger on the pulse of a sick terminal and he has never lost a patient yet.

THE figures that make it possible for us to gage the efficiency with which we are operating are the product of a department headed by Alexis P. Scott, secretary and treasurer of Consolidated. When ICC regulation made necessary some changes in our billing Mr. Scott looked around and when he finished looking he had developed a system whereby we can bill daily if we have to. As it is we put out statements every Tuesday—about 2000 of them—and these statements include pick-ups on Saturday and deliveries on Monday. There are some 16,000 freight bills involved and about 2000 statements.

With the help of an International Business Machine this billing is done in 5½ hours by two girls. It used to take three girls three days to do the job. With the work speeded up we can do all of the billing at Hartford, start the billing so that the two-day mail gets out first and hold our accounts receivable to 13 days with Mr. Scott sitting right on top of developments.

For our own information and the possibility of more statistical information demanded by the ICC we have long kept operating figures that do not fall in the class which normally come from billing. We kept enough of these statistics to keep four girls at it all of the time. By using the punch card system and punching a card for each shipment, customer, method of payment, commodity weight and terminal, we get the statistics as a by-product of the billing. This makes it possible for us to know more and to know it faster.

(TURN TO PAGE 64, PLEASE)

COMMERCIAL CAR JOURNAL
MARCH, 1937

There is a MONARCH DISTRIBUTOR Near You!

★ Regardless of your location—from coast to coast, you will find a conveniently located Monarch Distributor eager to serve you—and efficiently service your Monarch Governors, in the event that service should ever prove necessary.

ALABAMA
Birmingham Electric Battery Co.,
Birmingham

ARIZONA
Motor Supply Co., Phoenix

CALIFORNIA
Marvel Carburetor Sales Co., Los Angeles
Marvel Carburetor Sales Co., San Francisco

COLORADO
Spitzer Electrical Co., Denver

FLORIDA
General Automobile Supply Co., Tampa
Golf Auto Parts Co., Lake Wales
Patten Sales Co., Miami
Standard Bearings & Parts Co., Jacksonville

GEORGIA
Harris Automotive Service, Atlanta
Motor Supply Co., Inc., Augusta
Motor Supply Co., Inc., Brunswick
Motor Supply Co., Inc., Savannah

ILLINOIS
Mid-States Auto Electric Co., Chicago

KENTUCKY
Kentucky Ignition Co., Lexington
Kentucky Ignition Co., Louisville

LOUISIANA
Suhren, Inc., New Orleans

MASSACHUSETTS
Wm. H. Flaherty Co., Boston

MICHIGAN
Auto Electric & Service Corp., Detroit

MISSISSIPPI
Mississippi Truck Equipment Co., Jackson

MISSOURI
Electric Products Co., Kansas City
Medart Auto Electric Co., St. Louis

NEBRASKA
Carl A. Anderson, Inc., Omaha
Carl A. Anderson, Inc., Lincoln

NEW JERSEY
Wheels, Inc., Newark

NEW YORK
Battery & Starter Co., Inc., Buffalo
J. M. Steinhardt, Inc., Albany
Onondaga Auto Supply Co., Watertown
Onondaga Auto Supply Co., Syracuse
Wheels Inc., New York City
W. E. Bush & Co., Rochester

NORTH CAROLINA
Southern Bearings & Parts Co., Inc., Charlotte

OHIO
Cleveland Ignition Co., Cleveland
G. W. Holmes Co., Columbus
Huebner Supply Co., Toledo
Tri-State Ignition, Inc., Cincinnati

OKLAHOMA
American Electric-Ignition Co., Oklahoma City

OREGON
Sunset Electric Co., Portland

PENNSYLVANIA
Auto Equipment & Service Co., Inc., Philadelphia
Pitt Auto Electric Co., Pittsburgh

TENNESSEE
Service Auto Parts Co., Knoxville

TEXAS
Beard & Stone, Dallas
Beard & Stone, Houston
S. X. Callahan, San Antonio

UTAH
Automotive Service Co., Salt Lake City

WEST VIRGINIA
Benjamin Auto Electric Co., Charleston

WISCONSIN
Wisconsin Magneto Co., Milwaukee

THE NATION'S STANDARD

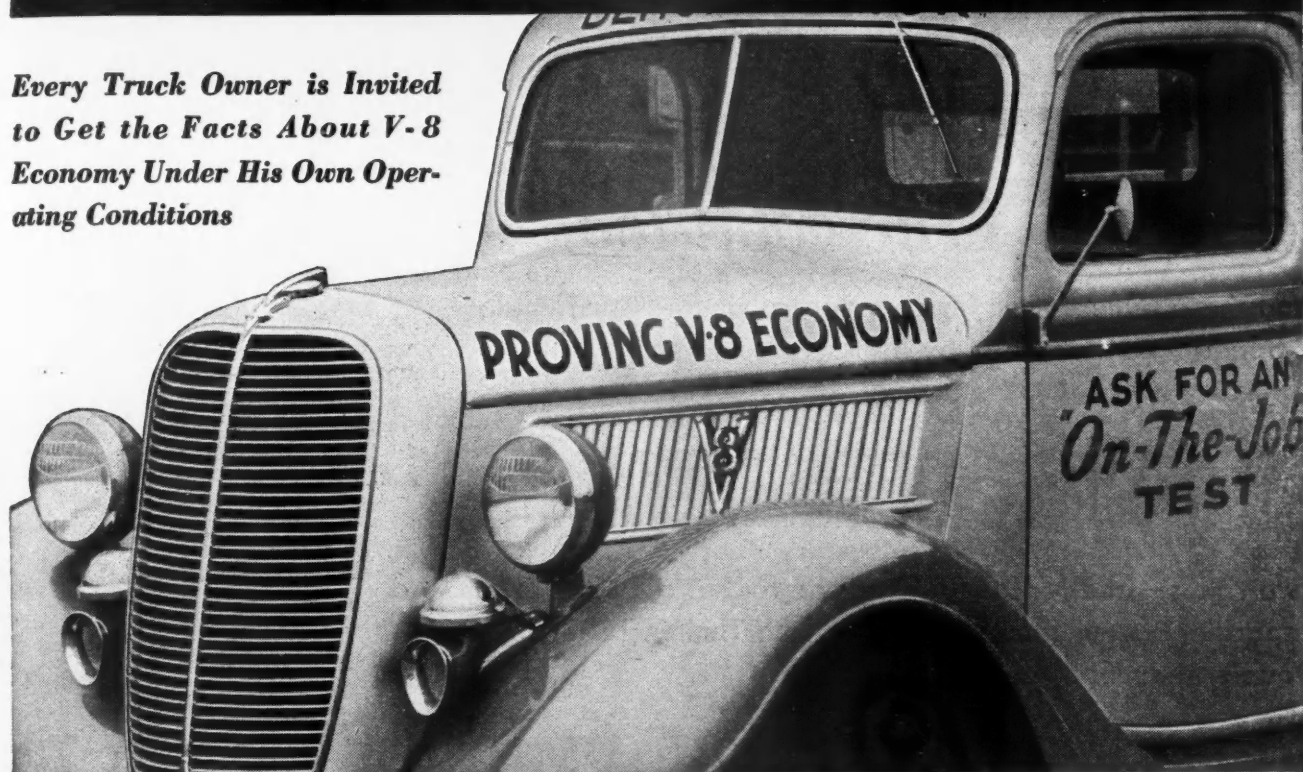
"Supervised Transportation"

MONARCH GOVERNOR COMPANY / DETROIT



WINNING NEW OWNERS BY ACTUAL PROOF!

*Every Truck Owner is Invited
to Get the Facts About V-8
Economy Under His Own Oper-
ating Conditions*



WHEN you buy your next truck, what will you want to know . . . what it IS . . . or what it DOES? In either case, your Ford dealer is prepared to PROVE the outstanding advantages of Ford V-8 Trucks and Commercial Cars.

If you are interested in mechanical detail, your Ford dealer can give you the facts about any part . . . and tell you its effect on power, speed, economy, reliability, safety, comfort and appearance. And if you are interested in RESULTS, he will be glad to let you make your performance and economy tests under your own operating conditions.



This year, every type in the Ford V-8 Truck and Commercial Car line is available with an 85-horsepower engine improved to give new economy on heavy-duty and high-speed operations. And types commonly used for light delivery work are also available with a new 60-horsepower V-8 that is setting new records for high gasoline mileage. Ask your Ford dealer to demonstrate the engine best suited to your individual needs. Call him today and set a date for an "on-the-job" test.

Convenient, economical terms through the Authorized Ford Finance Plans of the Universal Credit Company.

FORD V-8 TRUCKS AND COMMERCIAL CARS

(CONTINUED FROM PAGE 62)

The man who is responsible for building the figures which come out of the machine to impressive totals is John W. Ghent, vice-president and general traffic manager. In any enterprise other than a transportation company, he would be called sales manager because it is he who is responsible for selling the commodity which we have to sell—transportation.

THE sales of Consolidated are organized so that in the small terminals the terminal manager does most of the selling. In the large ones he devotes

almost all of his time to selling and has an operator to keep the freight flowing once it is in our hands. He may have other salesmen to assist him. The sales, much the same as operations, are apt to develop weak spots from time to time and three regional sales managers roam their given territories under Mr. Ghent's direction to keep the volume even and large. At present we handle in excess of 14,000,000 lb. of freight per week and we feel that a pretty good selling job has been done. We are not, however, satisfied.

And now a word about maintenance which, as you may have noticed, has

not been mentioned up to now. We have been puzzled over the centralizing of service because of the obvious necessity of having mechanical men on duty at strategic points. However, we now have that ironed out and we are in the process of setting up and equipping a new shop at our home in Hartford where all of the real maintenance work will be done. We are putting real money into new shop equipment and this phase of Consolidated is in the hands of Leon Charleston. Perhaps a little later we will be willing to talk a little about our maintenance.

Keeping right on top of our present operation has given us a pretty thorough knowledge of the trucking business and we look into the future confident that we have not reached our peak by a good deal. We hope and expect to expand our lines to cover the northern New York territory to Buffalo and south through Philadelphia, Baltimore and Washington. We now serve these territories by switching full trailer loads with Pyramid Motor Freight Co. at Newark for the south, and by switching trailers with Simpson Motor Freight at Albany, thereby sending our trailers west to Buffalo.

Timken Tandem Axle

(CONTINUED FROM PAGE 36)

flexibility to meet the rise and fall of the driving axles. The short shaft bearings are lubricated automatically by an oil inductor which picks up oil from the back face of the middle axle ring gear.

Both axles are full-floating spiral-bevel drives with outboard bearings on the pinions. The ends of the inverted semi-elliptic springs rest on hardened plates which are part of the axle housings. The spring ends are not attached to the axles which eliminates twisting of the springs when the axles rise and fall. The spring seats on the chassis are free to oscillate on a common central tubular pivot member which is rigidly attached to the frame by two support brackets and a cross member.

Torque rods maintain the axles in vertical position regardless of their position relative to one another and they also prevent the transfer of weight from one axle to the other.

Standard brakes are Lockheed hydraulic brakes 16 in. by 3½ in. and air brakes of the same dimensions are available at extra cost. The 68-in. tread permits the use of 9.00/20 tires with 10½ in. spacing. The axles are 46 in. center to center. The final total gear ratios including that of the torque-divider are 5.93, 7.12, and 8.29.

COMMERCIAL CAR JOURNAL
MARCH, 1937

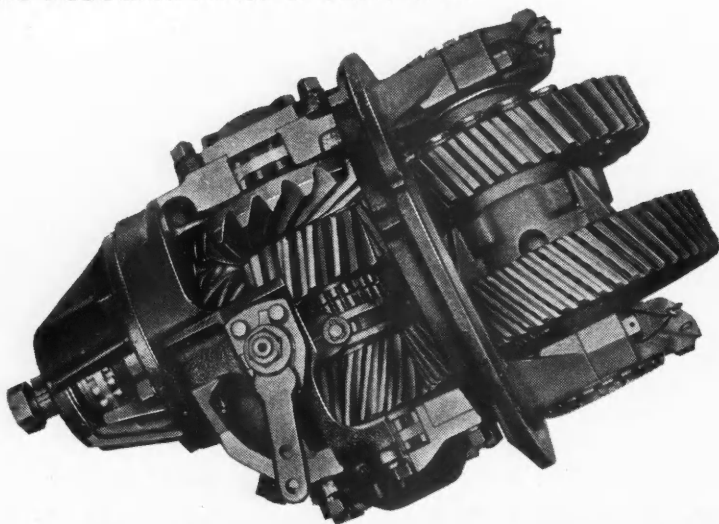


One good look—

and these features will impress you as putting the Timken 2-Speed Axle in a class by itself—

- ▼ unusually big husky gears
- ▼ Wisconsin Double Reduction Drive, normally exclusive to high priced trucks
- ▼ simplicity, compactness, accessibility

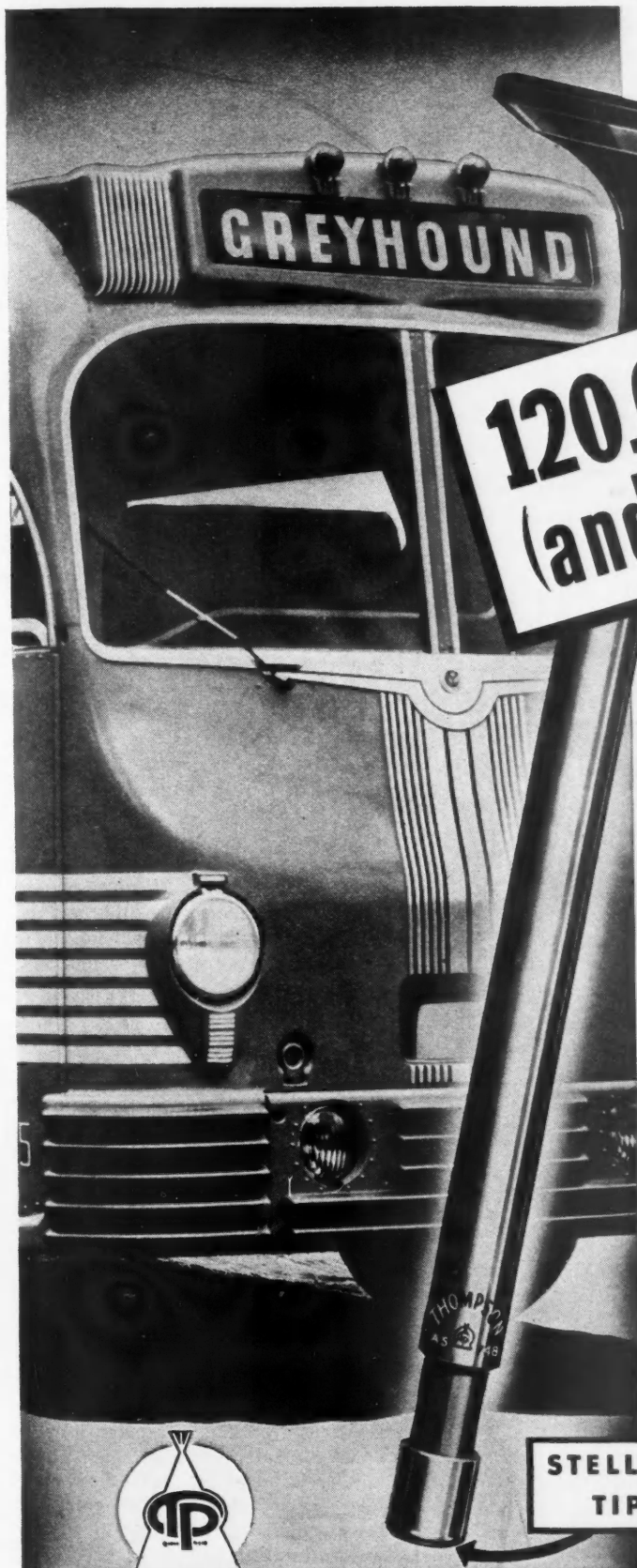
Two ratios—one for fast driving, one for hill climbing. Two capacities—both interchangeable with Timken Bevel and Double Reduction Axles of same size.



TIMKEN

2-Speed Axle

THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan
WISCONSIN AXLE DIVISION, Oshkosh, Wisconsin



**120,088 MILES -
(and ready for more)**

**"..the most satisfactory
valve we have seen for years"**

After 120,088 miles in Greyhound Bus No. 27, a set of Thompson Aero-type Valves was inspected and found in such excellent condition that they were refaced and put back for many more miles of high-speed service.

Made of Silchrome-X Steel, faced at seat and tip with Stellite, Thompson Aero-type Valves are the most rugged and economical yet developed for heavy-duty work. They are unequalled for resistance to heat, battering, pitting, corrosion and wear.

For more efficient engine performance with longer periods between regrinds, it will pay you to standardize on Thompson Aero-type Valves. They have many of the same engineering features as the famous Thompson aircraft valve.

THOMPSON PRODUCTS, INC., Cleveland • Detroit

Thompson Aero Type Valves

Tire Regrooving

(CONTINUED FROM PAGE 21)

2 in. apart. The regrooving is then done and the tire may be remounted immediately with the prospect of some 10,000 additional safe miles as a reward for your brief pains, or is it pleasure? It is for Armour.

The operating division of the Electric Bond & Share Co., New York City, has a lot to add to the subject of regrooving tires. This company has made an extensive study of the problem and has arrived at some positive conclusions detailing the advantages of re-

grooving. To begin with, EBSCO reviews certain known factors. These are that the greater part of tire life is passed in the tread stage; that is, before the tread pattern is worn smooth; that the remaining life of the tire depends on such factors as character of road surface, axle load, spring characteristics, weight distribution, shock adjustment, tire temperature and actual inflation pressure. However, in order to get the maximum in safe tire mileage for the rest of the life of the tire and retain the benefits of skid resistance and good traction, tire regrooving is the order of the day.

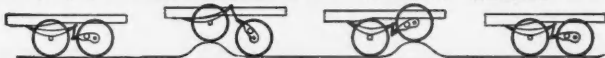
EBSCO explains that what happens



A diamond pattern is easily chalked on as a guide for the regrooving tool

TRUXMORE

WORLD'S BEST 3RD AXLE



GET—TO-MORROW'S TRANSPORTATION TO-DAY

Leading Fleet Owners have TRIED, then **ADOPTED** TRUXMORE 3rd Axles—They **KNOW** TRUXMORE Saves Money—Because they keep accurate cost records.

BE AMONG THE LEADERS— Use TRUXMORE and enjoy These Savings

25% to 40% on your initial investment
25% to 33 1/3% of your Total Operating Costs
20% more miles per year.

Write for your Copy of "IT'S BEING DONE" Address Dept "A"

TRUXMORE IS MADE IN 5 SIZES TO FIT ALL TRUCKS

Distributors in Many Principal Cities

New York
Syracuse, N. Y.
Binghamton, N. Y.
Rochester, N. Y.
Erie, Pa.




Chicago, Ill.
Philadelphia, Pa.
Pittsburgh, Pa.
Boston, Mass.

when a tread design is cut on a bald tire is that the contact area with the road is decreased and the unit pressure is correspondingly increased. This adds to tractive ability because skid resistance and traction are definitely related to pressure per unit of area in contact with the ground and to over-all flexibility of the complete tire. Depth of groove adds to flexibility and so the deeper the groove the better the traction.

Fleetmen agreed that regrooving adds safe tire mileage to tire life, and that a grooved tread generally tends to reduce wheel spin, reduce slide when brakes are applied and reduce slip on curves or crowned roads, and that these factors favored longer tire life.

NOT only are tire manufacturers promoting regrooving by putting more rubber on tires, but some are furnishing regrooving service through dealers and branches. General Tire and Rubber Co. has advocated the practice of regrooving tires after they have become bald but warn that the new groove should not cut the cord fabric. The B. F. Goodrich Co. has regrooving equipment in most of its company stores and on bus tire-mileage systems throughout the country. For bus mileage accounts regrooving is resorted to primarily from the standpoint of safety and to comply with laws against operating with smooth tires. This company has no doubt that safe mileage is increased and feels that the result is worth the little trouble; that in the hands of a practiced operator no damage is done to the rubber and that the wear resisting properties of the tire are not affected by applied heat. Danger of cutting into fabric exists and this should be guarded against.

Goodyear Tire & Rubber Co. believes that regrooving is a satisfactory (TURN TO PAGE 72, PLEASE)



Have
you ever heard
the Edison story?

**IT'S
LEAK-PROOF!**

*... and so is the
Spark Plug
itself*

Here's
the new
**BUILT-IN
LEAK-PROOF
GASKET...**

... that can not move out of
correct position. This is the only
100% compression tight gasket
ever developed and it has the
added merit of easier installa-
tion because of positive con-
centric fit.

"The most important development the industry has seen in years." That is how scores of fleet operators view the new Edison Spark Plug which has been so ingeniously engineered that it "makes light of heaviest duty".

Edison Spark Plugs have been thoroughly tried and tested by many large fleets. Records obtained from maintenance men show plainly that they not only out-perform but out-live the best products in the field today. Ask your jobber to show you the new Edison Spark Plug. Have him point

out the advantages of the BUILT-IN, LEAK-PROOF GASKET and the sturdy Albanite Insulator. But don't stop there. Install a set and test them. You'll see for the first time an absolutely compression-tight seal between plug and engine block. The correct, concentric fit of this gasket eliminates compression loss completely. It definitely reduces replacements and cuts down operating costs.

If your jobber doesn't stock Edisons, write us at once.

EDISON-SPLITDORF CORPORATION, West Orange, N. J.



(CONTINUED FROM PAGE 70)
method of renewing a tread pattern for additional traction and non-skid qualities. Seiberling believes that a regroove, in general, does not have the anti-skid and traction qualities inherent in the original tread design. U. S. Rubber favors regrooving for non-skid life and only warns against cutting cords of fabric ply.

The makes and types of regrooving equipment on the market are many. Types include abrasive or toothed wheels, cutters driven by air hammers or vibrators and electrically heated knives.

Devices using wheels of abrasive material or toothed cutters require fractional horsepower motor drives geared to give high rotating action. In using such devices, particular care should be taken that the operator does not cut into the fabric, especially on tires with flat spots or where areas have been worn excessively. To avoid this danger the cutter must be carefully adjusted to the thickness of the remaining rubber on the smooth tire.

Electrically heated knives of either push or pull type or operated as part of manually or motor driven wheel-turning units are considered very prac-



This tire gave 10,000 additional safe miles after regrooving. Note condition

TRUCKTOR

Turns Dead Weight into Payload



A 6-WHEEL TRUCK Saves 500 to 2500 lbs. on Chassis Dead Weight as Compared with a Tractor-Trailer

WITH the same top total gross weight, the operator of a six wheel truck is given a margin of from 500 to 2500 lbs. extra payload over a tractor-trailer operator. The saving for the six wheel truck results from the absence of a weighty upper and lower fifth wheel, landing gear, overlapping frames of tractor and trailer, and the weight of extra length of vehicle required to afford several feet of clearance between cab and body for turning. This extra payload secured to the six wheel truck operator continues throughout the life of the vehicle. Translated into dollars at a

definite rate per 100 lbs., this one item will pay the cost of the six wheel unit in a relatively short time. For example: assuming the extra payload to be 1500 lbs. at 50¢ per 100, it will return \$7.50 profit per trip. On the basis of 300 trips a year, the sum realized is \$2,250, or enough to absorb 100% of the cost of the six wheel unit, with a handsome balance left over.

These are facts which no truck operator can afford to overlook. We shall be glad to supply further details of proven economies and more profitable loading made possible by six wheel truck transport.



THE TRUCKTOR CORPORATION • 156 WILSON AVE., NEWARK, N. J.

tical by fleetmen and are easy to operate. Such tools are not injurious to the carcass and do not cause odor of burnt rubber unless allowed to remain unreasonably long in one spot on the tire.

It has been suggested that brake drum lathes or wheel balancing stands are useful for holding or rotating tires in conjunction with hand-operated electric regrooving equipment.

Some types of regrooving tools have attachments that permit cutting the tire without removing it from the wheel. These attachments cut circumferential grooves while the tire is on the wheel. Wheels are simply jacked up one at a time and the cutter is adjusted for the desired depth of groove. The position of the knife tip is fixed with relation to the axle center. There is danger of irregular cutting if tire or wheel is out of round. This should be guarded against.

AMONG the equipment found in use among fleets is the E. E. Stackhouse pull-type electric tire regroover made in Philadelphia. This unit consists of a slotted bar frame with hand grips of sponge rubber at each end. Adjustable roller guides clamped in slots in the frame assist in cutting accurate grooves. The heating element mounted at center of frame is of the cartridge type, arranged to receive the blade and conduct heat to it. This tool is available in two sizes for passenger car tires and truck tires.

In use, electrically heated push or pull types are operated by grasping handles and drawing or pushing the tool across the surface of the bald tire. Depth of groove is determined by angle at which the tool is held and the tool may be used on mounted or unmounted tires.

The Champion regroover, made by Allied Manufacturers, Inc., Ypsilanti, Mich., is an electrically heated knife type. This unit has a piston handle and may be operated with one hand. It

(TURN TO PAGE 74, PLEASE)

NEW 4-WHEEL-DRIVE EARTH MOVERS POWERED WITH HERCULES ENGINES



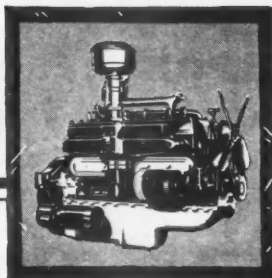
Hauling twelve-yard loads through deep sand, the new Oshkosh 4-wheel-drive earth movers—powered with Hercules Engines—are helping to push through the Knowlton Dam Project, north of Stevens Point, Wisconsin. With a speed of up to forty miles an hour, this equipment provides the contractor with a fast, rubber-tired, earth-moving unit, particularly useful where the going is tough

and the time element is important. Builders of specialized, heavy-duty contracting equipment naturally turn to Hercules for rugged, dependable power plants—either gasoline or Diesel. For over twenty years Hercules has specialized in the design and construction of heavy-duty engines only. This long experience is at the service of manufacturers of powered equipment.

HERCULES MOTORS CORPORATION, CANTON, OHIO

America's Foremost Engine Manufacturer • Power Plants from 4 to 200 H.P.

HERCULES



ENGINES

(CONTINUED FROM PAGE 72)

has adjustments for depth and width of groove and will cut from 1/16 to 1/4 in. deep. It is adjustable to all sizes of tires by the use of different blades and adjustable shims. The cutting blade remains at a constant heat. This outfit consists of a groover equipped with adjustable and reversible guide, four cutting blades, four cutting shims, wrench, special tire marker and file.

The Lotmor Tire Tread Cutting Machine Co., Springfield, Mass., has available three models of tire regrooving equipment for motor and manual operation. One model uses a special

designed cam that directs the cutting blade. A regulated gage placed in front of the blade determines the depth of the groove and is constructed to raise and lower the blade in passing over high and low spots on the tire. This action prevents cutting into the cord fabric. A 1/4 hp. motor turns the chuck and revolves the cam which is regulated by three speeds. Of the two other Lotmor groovers, one is the toothed wheel, motor driven. This is an adjustable cutter and may be set at any angle. The third model cuts only circumferential grooves. The blade adjusts to high and low spots.

Bendix Products Corp., South Bend, Ind., offers the Bendix-Peco Nu-Grip regroover. This unit is automatic except for adjusting tire on the machine and removing it. It is available with motor drive or manual turning. The power slotter will cut either circumferential or transverse grooves automatically with a specially designed cutting blade. The cutting blade is adjustable to varying depths and the space between grooves may be changed so that the "Squeeze-action" tread of close cut grooves may be attained.

The Safe Tool Mfg. Co., Bridgeport, Pa., has a groover that may be rolled under a jacked-up wheel and groove the tire in that position through a hand-driven sprocket and chain power system. The machine requires no skilled operator and a tire may be cut in about five minutes. This Roll-A-Bout groover will cut a circular groove.

The Vulcan Electric Co., Lynn, Mass., has an electrically heated push type regroover easy to handle. The blade heats in seven minutes. Blades are interchangeable to cut different types of grooves. The regroover handle serves to hold the cutting blade or may be used with a soldering tip as a soldering iron. Four types of blades are used.

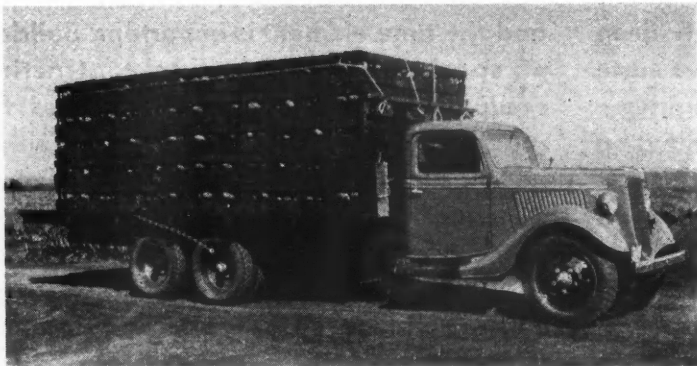
The Kwick-Kut Mfg. Co., of St. Louis, makes both the push and pull type regroover for either ribbon blades or pattern blade tools. This company suggests that the pattern blade tool will do neater work than the ribbon blade; that the operator can see where he is cutting at all times which is not possible with the ribbon blade push type. Pattern blades are available in 1/8-in. to 5/16-in. widths. When the 1/16-in. ribbon blade is pulled or pushed across the tire at right angles to the circumferential grooves, a strip of rubber about 1/32 in. is cut out and results in an excellent non-skid treatment. Kwick-Kut has available different models and sizes of tools with single and double handles to offer a line of tools for every type of job. A tire marking cradle is also available.

WARFORD-IZE TO MAKE PROFITS SHOW WHERE RED INK USED TO FLOW

Heavy-duty loads are carried by WARFORD MULTI-WHEELERS with amazing economies on fuel, oil, and tires. And that means profit-bearing savings to any fleet operator.

You can depend upon the WARFORD TEN-WHEELER to go anywhere, stop anywhere, for it has eight-wheel traction and ten-wheel braking. Your load will reach its destination safely, be road surfaces rough, smooth, soft, or slippery. The extra gear ratios of the WARFORD Super-Auxiliary Transmission keep ten-ton loads well within the working limits of the Ford V-8 engine.

Ask your Ford dealer or nearest Warford Distributor to show you how you can get improved highway transportation with Warford Ten-Wheelers.



A Warford Multi-Wheeler hauling eight tons net of pineapples in the Hawaiian Islands. One of many of these installations used for this purpose.

THE WARFORD CORPORATION

44 WHITEHALL STREET NEW YORK, N. Y.

**MORE
T O N S**

**MORE
M I L E S**

**LESS
C O S T**

Can the Accidents

(CONTINUED FROM PAGE 29)

short local hauls until he has become familiar with the truck and we have a record of his ability before he is allowed to make a long run as a helper. Some drivers move up rapidly, others never make the grade as long-run drivers. Each truck is air brake equipped. This has proved to be a big safety aid. Never have we had an accident since air brakes were installed that could be charged to faulty brakes. In the dash board of each truck is dis-

(TURN TO PAGE 76, PLEASE)



0. K'd by Men Who Know Their Trucks

1 "This long haul operation represents one of the most grueling runs in this part of the country. Our men cannot speak too highly of your axle. Saves time as well as fuel costs."

MICHAEL F. WALSH, Walsh Trucking Service, Massena, N. Y.

2 "We believe that this truck equipped with an Eaton Ruckstell Axle is an unbeatable combination from the standpoint of performance, flexibility, and economy."

ORAL GRAY, Gray Transfer Co., Centerville, Iowa

3 "This is the first axle of its type that we have used and we wish to express our complete satisfaction with this unit."

A. D. ATKINSON, President, Atkinson Transport Service, Bridgewater, Massachusetts

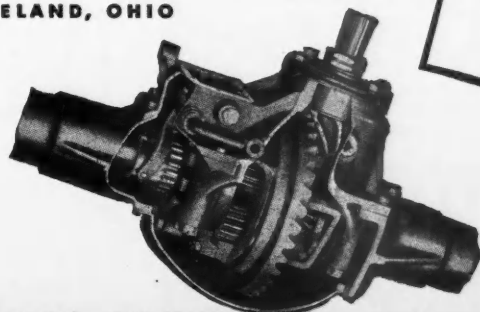
4 "I am so thoroughly sold on the Eaton Ruckstell 2-Speed Axle that I will give you an order for two more within the next few days."

WALTER CLARK, Hauling Contractor, Charleston, W. Va.

5 "To date this axle has been driven over 75,000 miles without repairs. I have been saving considerable fuel and time."

E. D. FRUMP, E. D. Frump Transportation Co., Charleston, W. Va.

EATON MANUFACTURING COMPANY
CLEVELAND, OHIO



2-SPEED AXLE ADVANTAGES

Widens the field of utility of any make or type of truck by providing quick, easy adaptation of engine speed to any road or load condition. This means a saving of time, oil, and gas. Starts heavy loads without shock to driving parts—fewer repairs. Provides more profitable speed on level roads. Gives better performance on hills. Quicker getaway in heavy traffic. Prolongs life of engine by reducing number of engine revolutions per mile. Performance attested by tens of thousands of satisfied users engaged in all kinds of truck operations.

8 SPEEDS FORWARD AND 2 REVERSE

EATON 2 Ruckstell SPEED AXLE

(CONTINUED FROM PAGE 74)
played a card that carries some safe driving hint.

EVERY month the drivers are given a copy of the National Safety Council's safe driver booklet. Timely items are copied from periodicals and newspapers and reprinted and handed to the drivers frequently. Twice a month Mr. Morgan writes a personal letter to each truck driver. In this letter he gives them all the statistical information concerning truck operations and calls their attention to some phase of driving that has been brought up during

the past fortnight. Any accident that has occurred from a driver's carelessness or other reason is brought out in detail. Bulletin boards are kept in the truck terminal. Weekly facts concerning the fleet are posted there. Any other safety literature that is procurable is used on these boards. Posters from the safety council are kept in prominent places and changed weekly. Truck drivers' meetings have been very difficult to hold. It is seldom that 50 per cent of the trucks are in Austin at the same time. Although we have thought of several bonus plans, we have not placed any in operation. Punishment



Makes motor overhaul an easy job for the fleet shop

Simplexing Service adds ring-replacement to the many other jobs that the fleet repair shop can perform without difficulty. Simplex Distributors in principal marketing centers will, upon call, pick up the pistons from any fleet-shop job, clean the grooves and expertly fit them with the famous Simplex Molum Rings and return them all ready to put back into the motor.

Molum Rings, which are priced down with the lowest, are made from special tough bearing-metal. They stop wear on cylinder walls, stop oil pumping and compression loss better than any other method you have ever used.



Phone the nearest distributor for your service on the next conditioning job.

SIMPLEX PRODUCTS CORP.
3816 Kelley Ave., Cleveland, O.

SIMPLEXING
The Simplex Method of Motor Conditioning

MORGAN ACCIDENT RECORD

Yr.	Trucks	Acc.	Miles	Acc. Rate Per 100, 000 Mi.
1933	60	122	*3,575,000	3.41
1934	71	53	*4,250,000	1.24
1935	80	40	5,200,000	.77
1936	90	29	5,800,000	.50

*Mileage records not complete, estimated.

TRUCK No. _____ SOLD TO MORGAN PACKING COMPANY									
DATE:		TIME:							
NAME OF STATION:									
DEALER'S NAME:									
STATION ATTENDANT:									
LOCATION OF STATION:									
GASOLINE:	GRADE TYPE	GALLONS	PRICE	AMT.	DATE	NET AMT.			
OIL:	GRADE	GALLONS	PRICE	AMT.	DATE	NET AMT.			
OTHER EXPENSES:	REPAIRS	TELEPHONE	TRUCK	WASH.	DATE	NET AMT.			
GRAND TOTAL:									
I HAVE READ AND CHECKED THE ABOVE REPORT AND FIND ALL FACTS AND FIGURES STATED TO BE TRUE									
DRIVER:									
HELPER:									
ANY STATEMENT ON THIS REPORT FOUND TO BE UNTRUE WILL BE CAUSE FOR DISCHARGE OF BOTH DRIVER AND HELPER. NO MONEY REFUNDED IF ABOVE REPORT NOT COMPLETE									

Gas and oil form No. 5

for driving offenses have been dealt with very rigidly. If a driver is at fault in an accident, he is, if the offense is minor, warned to drive safely, and any further infractions will be dealt with more severely. A layoff of from a week to a month for more serious accidents and permanent discharge for those for which there is no reasonable excuse. Often a minor accident has brought out facts concerning the driver that were not found during his training period and he is discharged.

WE believe that maintenance has played a very important part in our safety program. We maintain a com-

Forms 6 and 7, see details in story

plete garage with all the latest equipment for properly servicing and maintaining the trucks in first class condition. The driver is furnished with a
(TURN TO PAGE 78, PLEASE)

SIOUX opens up for You a New **PROFIT** Era in Valve Jobs

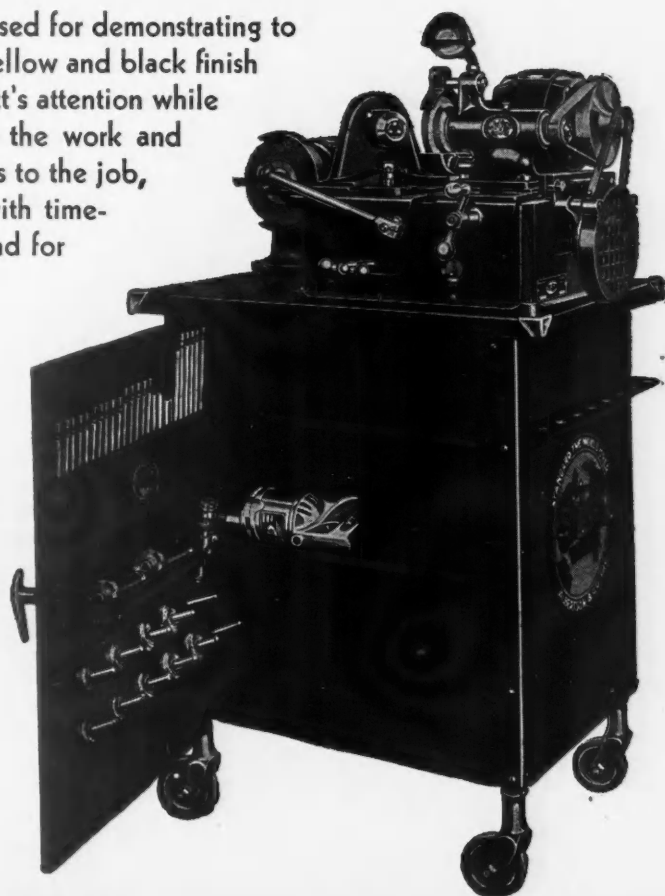
CAR OWNERS everywhere are waking up to the need for valve reconditioning after the first 10,000 to 15,000 miles on modern high compression engines. SIOUX offers the equipment that will first help you to sell more valve jobs and then to do the work more efficiently, more accurately, more economically, and more *profitably*.

SIOUX VALVE SERVICE Cabinet with handy SERVA-TOOL-DOR

It does *two* different jobs for you . . . first, it is used for demonstrating to car owners the need for valve work . . . its bright yellow and black finish attracts attention and helps you to hold the prospect's attention while delivering your sales talk. Secondly, it simplifies the work and shortens the time on valve jobs by bringing all tools to the job, within easy reach of the mechanic, doing away with time-wasting walking back and forth and hunting around for misplaced tools.

Here is a compact, complete, convenient cabinet easily wheeled around. Heavy steel construction, easy-turning castors, triple electric outlet, 25-foot cord, 2 valve racks, lock in door handle.

No. 677 SIOUX Valve Service Cabinet without tools. Can be used with present SIOUX equipment, or with additional SIOUX Tools needed to complete valve reconditioning set. (Picture shows No. 677 Cabinet with No. 620 Sioux Valve Face Grinding Machine, No. 2070 Sioux 6-inch Bench Grinder and No. 1725 Sioux Valve Seat Grinder Set.)



YOUR JOBBER SELLS IT

STANDARD THE

ALBERTSON & CO., INC.



WORLD OVER

SIOUX CITY, IOWA, U. S. A.

COMMERCIAL CAR JOURNAL
MARCH, 1937

(CONTINUED FROM PAGE 76)

report blank that he fills out at the end of a trip on which he makes request to the garage for any repairs that he deems necessary. Every truck must pass through a garage inspection at the end of each trip before it is released for its next trip. Records are kept of repairs made on a regular repair order. Brakes are checked each time a truck goes through the garage. Lights and all necessary equipment is checked and replaced if necessary. There cannot be too much stress laid on the importance of a complete garage inspection at the end of each trip.

Some of the most important forms used by us in our attempt to reduce the toll taken by accidents are listed here. These consist of the following:

Form No. 1. This form is considered to be one of the most important forms we use. The driver records on this form all tire changes while on the road. We maintain tire records that enable us to tell exactly the mileage of tire performance on each tire in the fleet. If the driver discovers any defect in his truck he fills out the report setting forth the repairs desired and turns the report in to the garage foreman in charge at the time. We main-

tain a very complete inspection program in the garage at all times and with the aid of the drivers' repair request, we are able to prevent breakdowns before they happen. As we explained, each truck must pass through the garage for a complete check-up at the end of each trip and in this checking process each truck is probably driven by as many as three men before it is allowed to be loaded again. As each mechanic is not only a trained repairman, but a competent driver as well, we have almost a fool-proof method of inspection.

Form No. 2. If it is necessary for the driver to have any repair work done while on the road, this form must be filled out and also be accompanied by the garage bill when turned in at the end of the trip.

Form No. 3 we call stop card. On this card the driver must enter each stop made on the road. He records the time stopped, the time he starts again, the speedometer reading at time of stop and gives the reason for this stop. It might be well to tell you at this time that all of our trucks are equipped with a recorder that registers the exact driving time of each truck.

Form No. 4. This "lost time" report form is self-explanatory and a rigid check is maintained to see that all reports are correct.

Form No. 5. This form is filled out by the driver whenever it is necessary for him to buy gasoline or oil while on the road and must be accompanied by the station's receipted bill. These are turned in at the end of the trip and the driver is reimbursed for the amount of gasoline bought. We have a list of certified stations in each state through which the trucks travel and drivers are allowed to purchase gasoline from no other station, emergencies excepted.

Whenever a truck is billed for a trip, and the drivers report for their run, form No. 6 is filled in, setting forth the destination, delivery point, name of driver and helper, weight carried, in fact all information as to equipment needed on the trip.

Form No. 7. Whenever it is ascertained that repairs or adjustments are needed, the garage foreman fills out this repair order. The white copy is sent to the parts department to be used as a record of all parts drawn for the needed repairs and the tag-board copy is used as a work order by the mechanic and a record of time consumed in making the repairs.

THE operation itself is quite an extensive one and makes the safety record all the more an achievement. The fleet
(TURN TO PAGE 81, PLEASE)



THE SERVIS RECORDER

Keeps trucks out of bad habits

Prevents Disputes and Misunderstandings

Best of all

Its MORAL EFFECT on the Good Driver!

If you were a good truck driver—and the boss didn't know it—how long would you remain a good truck driver?

You know the answer. Men don't do good work merely for wages. They want the boss to know that they are doing good work. And if the boss doesn't take an interest in what his trucks are doing, then who will?

And there's where the moral effect comes in. Consider the fleet that is equipped with *Servis Recorders*. Their charts show all the working time and idle time daily, for each truck. The drivers know, in the first place, that the boss in the office gets an absolutely correct report not only of what one truck did but what all the trucks did. Poor work stands out graphically and so does good work. There is justice in that. Routes are evened up, abuses are corrected, bad habits are prevented, no one is accused unfairly.

The boss gets all these facts—so when he speaks, he speaks quietly, for behind his words is the weight of scientifically correct testimony and all his men know and respect it.

Thus moral effect works smoothly and it works all the time. The mere fact the *Servis Recorder* is on a truck accomplishes wonders. Write for our 40-page Time Record Book—it's free.

THE SERVICE RECORDER CO., 1422 Euclid Ave., Cleveland, O.



"There are the facts, boys"

(CONTINUED FROM PAGE 78)
delivers the products of the Morgan Packing Co. and hauls raw materials into the company's plants. These trucks cover the Eastern, Central and Mid-Western part of the country. Each truck is sleeper-cab equipped and is manned by a driver and helper. These men drive in six-hour shifts. One sleeps while the other drives. They deliver their load at its destination and make whatever pickup is assigned to them for their return load. The company buys its supplies wherever it is most convenient to be picked up by their trucks: Dry beans, carrots, onions,

pork, flour, tomato pulp, etc., and move them into the various company plants at Austin, Scottsburg, Columbus, Edinburg, Franklin and Brownstown, Indiana.

Shop Hints from Fleets

(CONTINUED FROM PAGE 25)

ing boosters mounted on that member. When replacing these cross members we used two No. 3 members and placed them together by cutting the top flange off one of them. The lower flange of the member thus cut was permitted to

go outside of the lower flange of the member that was left whole. Three inches was cut from each end of the cross member that had already had the top flange removed. Then the two members were welded together at both ends at the top as well as at the bottom flanges. When they are welded it is necessary to clean up the holes in the cut member to make them line up with the holes in the member which is mounted in the original position. Before replacing the coupling shaft it is necessary to cut 1/2-in. off the tubing to compensate for the thickness of the second member.

4. Diesel Fuel Strainer

By WILLI TOTZESK

Chief Mechanic, Amsterdam Dispatch,
Amsterdam, N. Y.

WE have three Diesel powered trucks in our fleet and we had some road failures before we found that it was necessary for us to really strain the fuel before it got into the fuel tanks of the trucks. It used to take two men to do the job. One to hold the funnel with the strainer and the other to hold the hose.

To eliminate this two-man operation I designed a simple arrangement which consists of a 1 1/2-in. by 3-in. nipple and a few fittings. One end of the nipple was closed and the end was drilled to where it looked like a sieve with 3/16-in. holes. Then I took some 200-mesh screen and cut out 25 1 1/2-in. discs and soldered these together in units of five. These five discs fit into the nipple and the whole thing assembles with two 1-1 1/2 reduction connections which make it possible to put the whole assembly in the hose line.

To clean the strainer simply disassemble and blow out the screens with compressed air.

5. Wet Ignition Eliminated

By CLIFFORD B. GRIMES

Fall River, Mass.

TO eliminate mis-firing and failure to start due to wet ignition, remove high tension wires from coil and distributor head. If any corrosion shows clean out holes with a 21/64-in. drill and fill the holes with regular water pump grease. When installing wires include rubber covers over the holes and wire end. Insert wires into proper holes forcing them down with pliers. Do the same with the ignition coil.

Most water pump grease will not attack rubber and you can check with your vendor to make sure that you get the right kind of grease. All through this unusually rainy winter we have not had a road failure due to wet ignition.



Handsomely streamlined into the standard Ford cab . . chrome trimmed grille, radiator shell and hood . . hinged at the front of the truck frame . . assembly tips forward for adjustments . . the whole motor exposed and ready for complete engine repairs in three minutes . . easy to get in and out of cab, yet high enough to avoid all headlight glare and give a remarkably clear view of traffic.

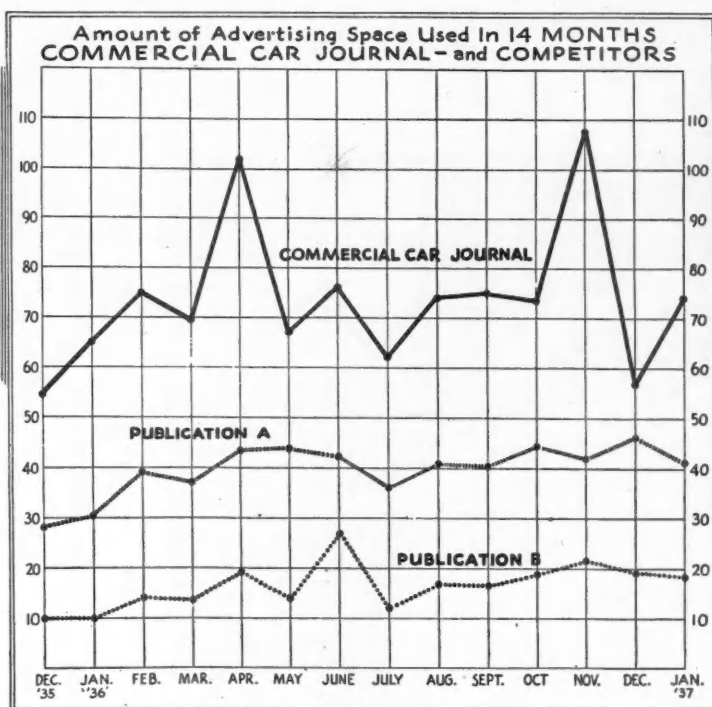
Write for new low prices and complete information on DEARBORN LINE

TRANSPORTATION ENGINEERS, Incorporated
10441 Shoemaker Street Detroit, Michigan

Dearborn Line

COMMERCIAL CAR JOURNAL

Leads in the TRUCK FLEET Field!



— and How It Leads!

The chart above shows how COMMERCIAL CAR JOURNAL leads in advertising pages run. No other publication approaches it. This chart shows 1936. It was much the same in 1935.

There Are Reasons for This

1. The largest and best TRUCK FLEET Circulation in the world.
2. The finest editorial material appearing in any publication in its field.

COMMERCIAL CAR JOURNAL has 30,000 distribution monthly. It reaches 25,000 Truck Fleets with 8 or more trucks. 5,000 copies go to the Truck Trade —paid circulation at \$2 per year. No other publication equals this.

You advertise with and to the Leaders when you advertise in—

COMMERCIAL CAR JOURNAL

A CHILTON Publication

Chestnut and 56th Streets



Philadelphia, Pa.



THE *Complete*

SPRAY PAINTING & FINISHING SYSTEM

The completeness of the DeVilbiss Spray-Painting System is well illustrated by the extensive line of standard DeVilbiss Spray Guns.

The DeVilbiss New Type MBC Spray Gun is of course the accepted gun for most all common painting operations and materials.

But some operations and materials require spray gun performance not common to general painting, while others do not require the superlative performance of such

an advanced gun as the all-purpose Type MBC. And for practically every one of these exceptions to the general rule, there is a gun within the standard DeVilbiss line that will exactly fill the need.

And further, should any material or operation prove so exceptional that requirements cannot be met by one of the standard guns, DeVilbiss is prepared to meet this problem with a specially designed gun.

This completeness of equipment is carried out not only in spray guns, but throughout the entire DeVilbiss Spray-Painting System. Whatever your own painting problem, DeVilbiss is equipped to provide an installation exactly suited to your individual requirements.



DeVilbiss



THE DEVILBISS COMPANY · TOLEDO, OHIO · U. S. A.

COMMERCIAL CAR JOURNAL
MARCH, 1937

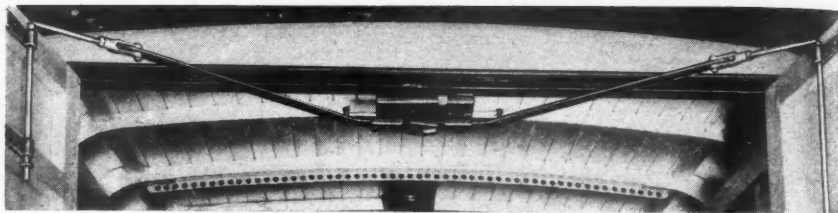
JOURNAL
MARCH, 1937

New Products On Parade

(CONTINUED FROM PAGE 44)

Gailwood Plug

IN the Gailwood Flame spark plug made by the Clayton-Steele Production Co., Inc., New York, the gas from the combustion chamber of the engine is forced upward through a preheating element. The gases are prepared for the ignition by the heating element and ignited. A flame is projected into the combustion chamber, igniting all of the gas accumulated there. The plug will operate without fouling in an engine that may be pumping oil past the rings.



C. F. Sponsler, 6119 Oxford St., Philadelphia, Pa., has this simple device for use on trucks having double doors. The device is attached to the head of the door frame and connects the doors in such a way that the opening and closing movement of one door causes a corresponding movement of the other door. The doors cannot move outwardly beyond a pre-determined limit and are held rigidly in the open position when desired. The truck may be driven with the door open. The device is adjustable for full swing of the doors



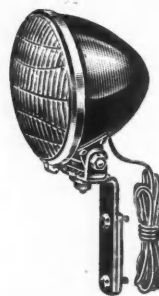
Countless dangers stalk the roads for the driver who cannot see. To pierce the darkness obstacle your drivers must have the advantage of the best safety lighting equipment. Inadequate lighting can add hours to your schedules, dollars to your competitor's business.

For the walls of fog which rise up, without warning, before your trucks, outfit with Do-Ray Fog Breakers and keep safely to schedules. Thirty to sixty feet of road-visibility are assured by the amber lens scientifically designed to overcome reflection from fog, and at the same time on-coming drivers are not blinded by any glare. Sturdy steel housing and truck-built bracket, with stainless steel dust- and water-proof door, fixed-focus bulb, and silver-plated brass reflector.

Truck flares are absolutely necessary for road safety. Do-Ray Truck Flares will more than meet State requirements as to burning time, guarantee your trucks absolute road-stop safety. Of heavy steel construction, and absolutely leak-proof, with combined snuffer cap and flag holder chained to body. High gloss red baked enamel finish, in box of heavy gauge metal.

The height and beam and clearance of your trucks can be seen by all on the highway when you equip with Do-Ray Three Way Lights. Of patented construction, with positive contact and one-piece wiring assembly of brass. Bakelite insulated.

Write for descriptive circular of these and other Do-Ray safety lights, or ask any jobber.



DO-RAY LAMP COMPANY

1458 South Michigan Avenue, Chicago, Illinois

Tank-Truck Manifold

OPERATORS of petroleum product tank-trucks will be interested in the new Brodie compartment manifold unit. Known as a selector manifold, its interlocking operation prevents opening of more than a single truck compartment at a time. It is being made for trucks having from two to six compartments. Compact and of free-flow design, it takes the place of special welded manifolds, separate valves and pipe fittings. The Brodie manifold prevents accidental drawing of air from an empty compartment through the truck meters, thus avoiding erroneous measurement. It is said to greatly simplify compartment control because a single hand-wheel operates up to six unit-built valves. Application diagrams are contained in a bulletin now available from Ralph N. Brodie Co., 970 61st Street, Oakland, Cal.

Valve Bender

A NEW valve bending tool called "Easy Valve Bender" has been placed on the market by the Myers Tire Supply Co., Akron, Ohio. This new tool is designed to



bend valve stems to fit rims and wheels that require angle valves. It bends any angle or number of angles.

Easy to operate: You simply insert the valve stem in the hole and lift the handle until the desired bend is made. Made of malleable steel, the Easy Valve Bender is guaranteed against defects and breakage. It can be readily attached to the shop wall or work bench.

Cellufoil Coating

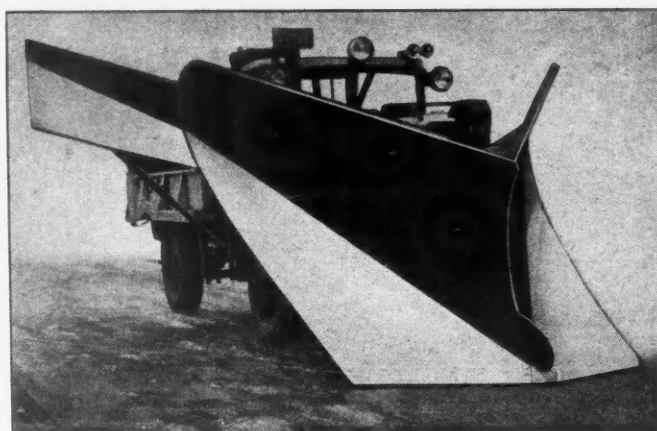
CELLUFOIL, a new transparent protective coating for all bright metal surfaces, has been announced by the Evans-Walton Co. of Detroit. Applied as a liquid, it hardens quickly and becomes a tough, adhesive top layer, and will preserve indefinitely the natural lustre of any bright metal such as chrome or nickel.

(TURN TO PAGE 86, PLEASE)



PREPARE FOR WINTER WITH WALTER TRUCKS AND BE SAFE

WALTER TRUCKS with their 100 per cent traction and Four Point Positive Drive may be seen in all parts of the United States and Canada—snow fighting—road maintenance—material hauling — transport — general utility.



WALTER SNOWFIGHTER WITH CENTRE PLOW, WING

EXPERIENCED fleet owners of trucks are buying WALTER MOTOR TRUCKS because they provide low-cost transportation. Be safe and insure delivery of oil to the home when the winter is raging at its height. Heavy snow fall, ice-coated roads or any severe highway driving condition can not stop WALTER MOTOR TRUCKS in general utility service.



WALTER REFUELING VON HINDENBURG

WALTER MOTOR TRUCK CO.

1001 IRVING AVENUE

RIDGEWOOD, QUEENS, L. I., N. Y.

SEND FOR DESCRIPTIVE LITERATURE

(CONTINUED FROM PAGE 84)

Fifth Wheel

EIGHTEEN SQ. FT. of loading space without increasing the overall length of the trailer is one of the features of the compensating fifth wheel made by the Dominion Truck Equipment Co., Ltd., Kitchener, Ontario. Full automatic brake and light connections are offered as optional equipment, which eliminates all brake hoses and light wires. The fifth wheel contributes to better load distribution and greater traction as the additional weight is distributed ahead of the center of the fifth wheel king pin.

Spintex for Batteries

GLOBE-UNION, INC., Milwaukee, Wis., has a new battery separator called "Spintex." It is rubberized fabric that looks like a standard cedar separator. It has the advantage of compactness and it permits free, fast circulation of the active power creating materials. Laboratory tests have proved the enduring qualities of the new separator. When the plates buckle the rubberized separators will withstand the pressure which is exerted against them.

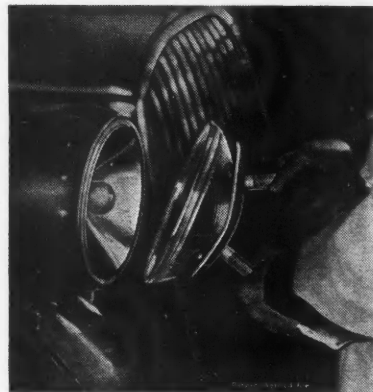
Everlight Guard

THE Safety Light Guard Co., Chicago, Ill., announces the Everlight Guard which

consists of a double filament road light, rear beacons and a control unit. It incorporates an electro-magnetic unit which closes the circuit of the safety system whenever there is a short in the regular system. This turns on the safety filament of the road light and also the rear lights. These lights get their current from a dry battery in the system.

Lens Tool

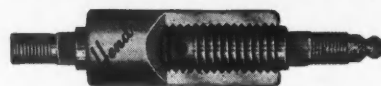
HEADLIGHT lens tool for removing and replacing headlights safely and quickly and eliminates danger of broken lens.



Four live rubber vacuum cups grip the curved surface of the lens while the handles provide extra leverage. The metal shield of the tool distributes the pressure evenly. It is available from the manufacturer, Miller Tool & Mfg. Co., Detroit, at \$2 each.

Spring Shackles

THE Service Spring Co., Indianapolis, Ind., has announced a new threaded spring shackle for replacement service on Ford V-8 cars. The new product, known as the Hendrix Shackle Assembly, consists of a threaded bushing of case hardened steel, into which is fitted a corresponding threaded shackle bolt. The screw-type



surfaces naturally distribute the strain and friction caused by spring motion over a greater bearing area than is the case with a smooth surface bolt and bushing.

Vacuum Kits for '37 Chevrolet

THE Midland Steel Products Co., Cleveland, Ohio, announces that it is now able to supply tractor and trailer vacuum kits for the new 1937 Chevrolet. These kits are produced in all types and Midland is the first to offer this brake equipment for the 1937 Chevrolet. The kits are packed complete in handy packages with complete instructions for application. They are easier to install and require less time.

Free Service Information

TO provide service men with the best service information available on all makes and models, the Hall Mfg. Co. is issuing at regular intervals a bulletin called Hall Serviceology. With the first issue goes a (TURN TO PAGE 88, PLEASE)

COMMERCIAL CAR JOURNAL
MARCH, 1937

FOR THAT COOLER PERFORMANCE

ask for

**A WEATHERHEAD
B-V ARMATURE..**

**IT'S
AIR CONDITIONED!**

• Accurate winding results in apertures which act like a fan when the armature revolves. Also a complete line of standard armatures.

WEATHERHEAD
C L E V E L A N D • O H I O

NEVER BEFORE

A PRIMER LIKE THIS!



Exceptional filling, adhesion and flexibility.



Dries to sand in 4 hrs.; recoat with surfacer in 1 hr.



Dry sands quick and easy without gumming the paper.



Saves 1—2 days. Used with or without surfacer.

The New KEM METAL PRIMER

Especially developed for use under Kem X-47 and Kem Transport Enamels, this new primer has been acclaimed the greatest contribution to finishing techniques since the advent of synthetic enamels. Kem Metal Primer often has sufficient build to eliminate surfacer coats. It dries fast, yet levels so well that sanding is a quick and simple operation, and there is a minimum of dust when dry sanded. The remarkable adhesion, flexibility

and durability of these finishes are not affected by the application of finishing coats as are other primers. Test this material in your own shop.

Kem Metal Primers are available in white, neutral gray, dark oxide, yellow and light red. See the Sherwin-Williams OK Automotive Jobber or write The Sherwin-Williams Co., Cleveland, Ohio, for full particulars about this different and money saving primer.



SHERWIN-WILLIAMS

AUTOMOTIVE FINISHES

COMMERCIAL CAR JOURNAL
MARCH, 1937



(CONTINUED FROM PAGE 86)

handsome and durable loose-leaf binder into which succeeding issues of Serviceology can be filed as they are received. This provides a means for keeping this service information clean and ready for reference the instant it is desired.

The Hall Mfg. Co. will furnish this service information free to any service manager or garage owner who requests it through his jobber salesman. The initial issue of Hall Serviceology is now on the presses and service managers and garage owners who desire to receive this information regularly are advised not to delay asking their jobber salesman for it.

Tire Inspector

THE new Manley portable tire inspector can be used for putting in tubes, inserting flaps, opening tires and many other applications without lifting the tire from the floor, resulting in a great saving of time and labor. It is especially designed for the inspection of heavy truck tires and for the reduction of the heavy work of handling them.

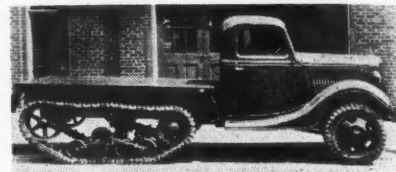
Handle and cylinder are in one piece and made of light weight cast aluminum. Button control valves conveniently located on handle control the operation of the inspector. The inspector is sold complete with 10 ft. of rubber hose and two tire

holding irons.—American Chain Co., Inc., Manley Mfg. Division, York, Pa.

Half-Track for 1½-Tonners

A HALF-TRACK driving unit which is adaptable to all standard 1½-ton trucks has been developed by James Cunningham, Son & Co., Rochester, N. Y. The unit is now being offered for commercial use where hauling must be done over unimproved roads and across country.

Conversion of a standard truck to a half-track vehicle is by moving up the rear axle



about 36 in. A 3-in. shaft, which carries the weight of the rear of the truck and most of the load, is bolted to the frame at the original location of the rear axle. Semi-elliptic springs transfer the load to two pairs of bogies on each side of the truck, which are free to oscillate independently.

Attached to each end of the bogies are 10-in. rollers which run over a patented rubber-cushion track. The track passes over a 20-in. idler wheel.

Brake drums and brakes are retained on the rear axle. Two hand brakes are provided; each applies the brake on one of the sprocket shafts so that the right or left hand brake can be applied and the vehicle steered by being driven by one track only. Each track has a length of ground contact of 40 in. Ground pressures are approximately 7 lb. per sq. in. with truck empty and 10½ lb. per sq. in. with full load.

Brake Lining Mortar

BENDIX brake lining mortar builds a firm foundation that fills and hardens in any irregularities in the brake shoe rim incurred in service or in the liner segment



through fabricating processes.

This filler mortar eliminates the spongy feel to brake operation by allowing a solid base for the lining segment. Its use retards the tendency toward brake fade-out; assists in eliminating brake friction noises, and prevents the entrance of moisture between the brake lining segments and the brake shoes, it is claimed.

[More Products on Page 91]

COMMERCIAL CAR JOURNAL
MARCH, 1937

Approved HEAVY DUTY

Pyrene

FIRE EXTINGUISHER

For years the Pyrene fire extinguisher has met the requirements of fleet operators who want their trucks dependably protected from fire. Pyrene has always represented an investment . . . time-tested . . . in security . . . the most economical buy in the long run.

Now the Heavy Duty type more than meets the requirements of the I. C. C. Regulations for interstate trucks and buses, effective July 1st. Pyrene fire extinguishing fluid will not freeze at 50° below zero . . . extinguisher fabricated from heavy-gauge brass with reinforced side panels. Cushioned construction to withstand vibration—carried in truck type brackets—shock proof—rattle proof.



Bracket for mounting on dash or other convenient location in cab, at no extra cost

Special Steering Post Bracket at slight extra cost

READY NOW . . . ACCEPT NO SUBSTITUTE

Pyrene Manufacturing Company

NEWARK NEW JERSEY

ATLANTA
KANSAS CITY

Fire Extinguishers

CHICAGO
SAN FRANCISCO

Tire Chains

Sterling MOTOR TRUCKS

DIESEL AND GASOLINE

GREATER PROFITS

Cost sheets tell the story! Net savings of over \$15,000.00 per truck. An achievement of Sterling Diesel powered motor trucks—trucks which have traveled in excess of one-half million miles and are still in operation.

Be sure of maximum returns on investment. Select Sterling motor trucks for superior performance and lower operating costs. Write for full information.

STERLING MOTORS CORPORATION
MILWAUKEE WISCONSIN

Motor Tune-Up

is a real profit and business building service.



Send for free
Tune-Up Charts

CARTER CORP. CARBURETOR
2834-56 N. Spring Ave.
St. Louis

DOUBLE
SAFETY

POSITIVE
TRACTION

DOUBLE
MILEAGE

McKay Multi-Grip Double-Bar-Reinforced Truck Chains

THE MCKAY COMPANY
MCKAY BLDG. PITTSBURGH, PA.

THUMB-SCREW ADJUSTMENT BALANCED (3-SIDE) PULL OVER LAPPING SEAL

TRADE MARK
NOC-OUT
HOSE CLAMPS
THE HOSE CLAMP WITH THE THUMB SCREW

Standard equipment of the automotive industry. Adjustable - one size equals many. Quick tightening, perfect seal. At all Jobbers.
Pat. No. 1,382,813.

WITTEK MFG. CO.
4305 W. 24th Pl., Chicago, U. S. A.

ADJUSTABLE FOR SIZE

COMMERCIAL CAR JOURNAL
MARCH, 1937

Hollywood Stars Trucks

(CONTINUED FROM PAGE 27)

to the job offered her by Jim Gifford, who is in love with her and has just been made District Freight Agent of the S.E.P. Railroad.

BIFF enters upon his new career with characteristic verve, even to buying his old bus from the transit company and converting it into a flat bed, giving the new firm a fleet—of two. Padula is still their rival, and a menace. One afternoon while two of Padula's drivers are in the cafe, Biff gets a call from the Poulsen Chemical Works. He accepts gladly, for a long price is offered. But Padula's men tell him their boss has just turned down the same job, as the load is nitroglycerin. Mary anxiously tried to dissuade Biff from handling the load, for recently one of the most experienced truckers in those parts met with an accident with high explosive.

Charlie knows how to handle soup, and all might have gone off well had not Biff met with Padula in a freight depot and at sight of the guy who has done all he could to hamper the new company, Biff lets drive and a free-for-all fight starts, which lands Biff in a comfortable jail cell.

When his experienced partner does not show up, Charlie endeavors to drive the danger-laden truck.

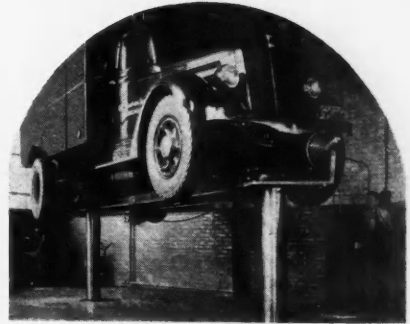
Padula has waited for this chance. Driving ahead of the creeping Charlie he places a detour sign near a rocky cutoff . . . the explosion is heard for miles around.

Mary is broken-hearted and when her grief is abated she takes the railroad freight department job.

TO forget Mary, Biff plunges into work and forms another partnership with a Scotchman named McCorkle. One day a big trailer job of the Peerless Freight Lines of Chicago bumps him and he struts indignantly to the president of the concern. Corrigan, the president, is so flabbergasted by the young man's nerve that he hires him on the spot. It isn't long until Biff becomes traffic superintendent for the Peerless fleet.

In this job, he realizes that the S.E.P. Railroad is giving his company a raw deal in making them use a very long route into their yards. There is another gate which the Peerless trucks could use, so Biff goes straight to Freight Agent Gifford. The latter refuses to let Biff use this gate, whereupon Biff lines up a string of trucks

(TURN TO PAGE 90, PLEASE)



SOMETHING TO LOOK UP TO

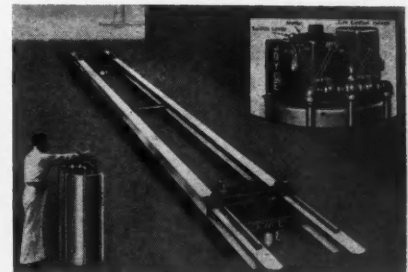
JOYCE TRUCK LIFTS are indispensable to pridesworthy maintenance, for without such facilities your maintenance men cannot be expected to give the minute and constant attention to truck details which continuous fleet service demands.

Something to look up to . . . the many vital parts of your trucks, which can be so easily and completely checked and serviced with **JOYCE TRUCK LIFTS**.

There are Air or Electrically operated **JOYCE Hydraulic LIFTS** . . . single, two and four post . . . to handle all capacities between 8,000 and 40,000 lbs. There is a **JOYCE** to fit your particular purpose.

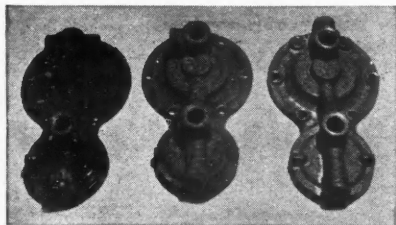
Our interest lies in helping you. Ask your jobber or write us for information today.

The Joyce-Cridland Co.
532 Findlay Street, Dayton, O.



JOYCE LIFTS

Builders of Lifting Devices
Since 1873



This photo tells a story . . .

The photo above tells a graphic story of cold tank cleaning of die-castings with MAGNUS No. 78. The pump at the left of the photo is shown before cleaning. The pump in the center, cleaned in a degreaser, shows grease and loose dirt removed, but the hard dirt on top and in the crevices not touched.

The pump at the right of the photo was soaked overnight in a cold solution of MAGNUS No. 78, followed by a cold pressure water rinse. ALL grease and dirt were removed. Note clean, bright appearance of threaded openings. This new Magnus product affords a simple yet effective method for the cold tank cleaning of such parts.

Write today for our new Bulletin on MAGNUS No. 78 and its application to your parts cleaning operations.

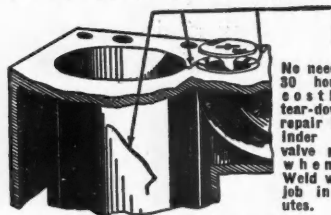
MAGNUSCHEMICALCOMPANY



38 South Avenue, Garwood, N. J.

MAGNUS CLEANERS

AVOID COSTLY DELAYS WITH WONDER WELD



No need to spend 30 hours on a costly engine tear-down job to repair inside cylinder wall and valve port cracks when Wonder Weld will do the job in 30 minutes.

Ask your jobber or write
MILLER MFG. CO.
1218 KAIGHN AVE., CAMDEN, N. J.

OSHKOSH

4 Wheel Drive Trucks

A proven product. 1½ to 10 ton capacity. Write for complete information.

OSHKOSH

Motor Trucks, Inc.
Oshkosh, Wis.

VOLT-O-MATIC GENERATOR

... Shoulders the
Battery's Burden...

Write for booklet that tells how

UNITED AMERICAN BOSCH CORP.

SPRINGFIELD, MASS. New York, Chicago, Detroit

(CONTINUED FROM PAGE 89)

as a battering ram and goes through, dragging gates, watch towers and smashing everything in sight.

Of course, the railroad close all their terminals to Peerless, and Corrigan is naturally furious but before he has a chance to pronounce the words "You're fired!" Biff blandly proposes that they give up short hauls and go for the long ones only. Corrigan says he's nuts, that the trucking business is a short haul business. But Biff says he's going to prove that it ain't. A Chicago manufacturer has a load of airplane parts consigned for the *Chichu Maru* in Los Angeles harbor, the last boat to be loaded before the strike. Because of the lockout, the S.E.P. Railroad has refused to guarantee delivery on time.

Damned if Biff doesn't commandeer Corrigan's whole fleet while the latter is out at a cocktail party. The caravan is loaded and we hear Biff giving the drivers a snappy pep talk before they start out, equipped with traveling blacksmith shop, commissary and a truckful of spare tires and parts.

Gifford hears about it and says the railroads are doomed if the caravan gets through. He loads a train with duplicate merchandise to race the trucks to the West Coast. The contest arouses national interest. The newspapers front-page the story and the public is given dramatic day-by-day progress reports. First the train is ahead, then the caravan leads. The captain of the Japanese freighter, interviewed by reporters, has promised that the first shipment to arrive will be loaded aboard his ship.

The train, snowbound in the mountains, is delayed while waiting for a rotary plow to clear the right of way. Press photos show the truck caravan held up while the mechanics work frantically on roadside repairs.

Gifford, with his stenographer Mary aboard, is traveling in a car just ahead of the truck caravan, in touch with the train by radio. Tooling along, his car is badly wrecked. Gifford, only scratched, is abandoned to his fate, but Biff picks up Mary in the caravan ambulance car and nurses her tenderly as train and caravan are neck-and-neck during the last lap into the Los Angeles city limits.

But the race is not over. IT's still about 18 miles to the harbor and the wharf where the *Chichu Maru* lies berthed. To divulge the exciting climax of this entertaining picture, however, might spoil your enjoyment of the show.

Drivers who see it may pick up some useful kinks on truck operation and maintenance, while fleet owners in the

(TURN TO PAGE 91, PLEASE)

Eliminate Vibration With the OHIO FLEXON Clutch Plate



Will correct such clutch troubles as clashing gears, jerky starting, vibration and clutch chattering. Flexible center and cushioned surfaces insure smooth clutch performance.

AUTOMOTIVE PARTS DIVISION
Wagner Electric Corporation
St. Louis, U. S. A.

IT PAYS TO BUY

EDWARDS QUALITY SEMI-TRAILERS

EDWARDS IRON WORKS, INC.
SOUTH BEND, INDIANA

Pin Hole Honing is Cheaper and Better than Reaming

Never a dull tool or blade-marked hole; small investment; nothing to sharpen; no guess-work or inaccurate fit. Low cost replacement Abrasives; Micrometer Adjustment. Makes ANY mechanic an expert pin fitter. Ask your Jobber today for Standard or Heavy Duty Pin Hole Set you need.

3-TOOL
SET
\$24.00

HALL
PISTON PIN HOLE HONE

BRAKES?

1. Doubled Load Capacity
2. Tripled Lining Life
3. Permanently Equalized

with

LINDERMANS

A drum full of lining and the same pressure under every square inch.

Send for catalog 101-2c.

LINDERMAN DEVICES, Inc.

149 Broadway, New York, N. Y.

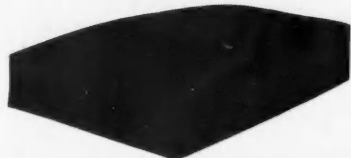
WAUKESHA

- Comet Diesel
- Hesselman
- Gasoline
- Hy-Powr
- Ricardo Head



ENGINES

This is a



SPONGEX SEAT CUSHION

- Cheaper than springs, comfortable, long wearing. The special grid construction prevents "packing" even under the severest shocks. There is no metal in Spongex Cushions, therefore, no chance of injury. Write today for prices and full information.

Address Dept. C
SPONGE RUBBER PRODUCTS CO.
DERBY CONN.

Be Sure to Specify MIDLAND (Christensen) POWER BRAKE EQUIPMENT

Complete Kits Available at your
nearest Midland Distributor

TRADE **YALE** MARK
DIRECTION SIGNALS FOR
TRUCKS, BUSES AND
AUTOMOBILES

TRADE **YALE** MARK
SAFETY FLUSH TYPE HANDLE
FOR AUTOMOBILES, TRAILERS,
TRUCKS AND AIRPLANES
THE YALE & TOWNE MFG. CO
Detroit Division
12340 Cloverdale Ave. Detroit, Mich.

(CONTINUED FROM PAGE 90)

audience will doubtless reflect on the moral of the piece, which to them may be said to hinge on cocktail parties—to accept or not to accept such invitations when the night watchman of the garage is off duty?

DRAMATICALLY depicting the advantages of truck transport to the shipping public, the film is a timely "tie-in" with the industry's promotional efforts. If "California Straight Ahead" proves a box office success, it will assuredly be followed by a cycle of truck-located pictures.

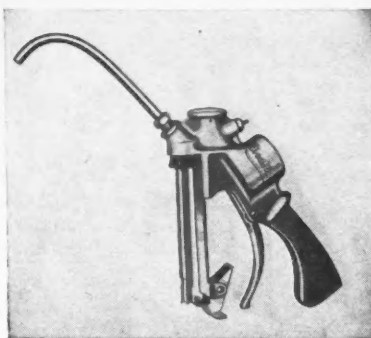
And now that the ground has been broken, it might be a good time for some enterprising manufacturer to break out a commercial movie with some of his late model bodies cast in the starring roles. Advertised and exhibited to the trade and the public alike, the film would surely make an effective "follow-up."

New Products on Parade

(CONTINUED FROM PAGE 88)

Hypoid Lube Dispenser

THE BROOKINS MFG. CO. has perfected a durable, light weight hypoid gear lube dispenser that enables the operator to pierce the container and dispense gear lube quickly and efficiently without loss of con-



tents. It will handle one, two, or three lb. cans. It has several important features, such as a telescoped dispensing tube, and relief valve which automatically returns lubricant in outlet nozzle to can.

(TURN TO NEXT PAGE, PLEASE)

THE ROBINSON UNIVERSAL COUPLING HOLDER

- HOLDS SECURELY
- SUPPORTS HOSE
- SEALS FROM DIRT

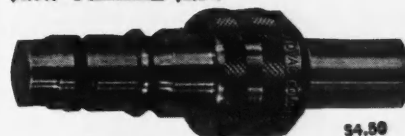
- Fits all standard type couplings. . . . Protects male coupling from damage which destroys brake efficiency.

\$1.25 LIST
PRICE

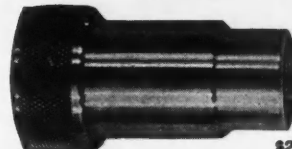


THE ROBINSON AUTOVAC COUPLER

Connected . . . Autovac is fully open! Disconnected . . . Autovac is tightly closed! No valve to turn off . . . nothing left to chance. Saves time and money. Autovac protects hose lines and mechanism from water and dirt . . . it's automatically sealed when not in use. Furnished in 3 sizes $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ inch. MALE \$4.50. FEMALE \$2.80.



\$4.50



\$2.80

**RELIABLE MACHINE SCREW
SALES CO., INC.**
NEWARK, NEW JERSEY

DETROIT COMPENSATING AXLE

The first practical mechanical device to provide an automatic camber for semi and trailer axles, thus insuring longer tire life and marked fuel savings.

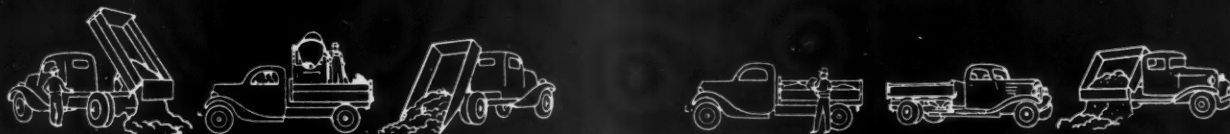
For detailed information write or wire.

Detroit **COMPENSATING** Axle Corp.

Compensating Axles and
Differential Wheels

481 Beaufait Street Detroit, Michigan

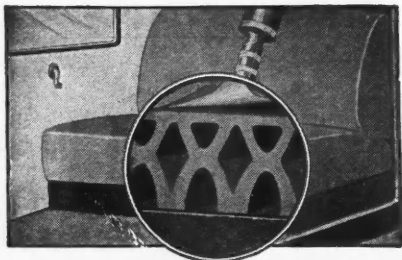
A ST. PAUL HYDRAULIC HOIST AND BODY FOR EVERY MODEL OF TRUCK



25 Years of Successful
Manufacture of Hydraulic
Hoists for Motor Trucks.

St. Paul
HYDRAULIC
HOISTS AND BODIES

ST. PAUL HYDRAULIC
HOIST COMPANY
2207 University Ave. S. E.
Minneapolis, Minn.



What Better Testimony for Black-Diamond All-Rubber SEAT CUSHIONS?

There is no better testimony to the superiority of these famous seat cushions and back rests than their universal use by smart-buying fleet owners. For trucks you want only durable equipment that requires no upkeep expense and gives a plus value of service and comfort. Black Diamond all-rubber seat cushions without question meet these prerequisites best. Send us your seat specifications for either new or replacement cushions and we can tell you instantly what this diamond grid constructed equipment will cost. No obligation.

KARPEX MANUFACTURING CO.
1424 E. 19th St., Indianapolis, Ind.

THE GENERAL FILTER



WILL SOLVE YOUR FILTER PROBLEM IT has a great capacity for dirt. Keeps the oil in your engine free from abrasives thereby decreasing maintenance cost. The cost of the cartridge is sufficiently low that it can be replaced every time the oil is changed. Simplicity in design permits the cartridge to be changed very quickly as there are no bolts or nuts to be removed.

Dealers in your locality

Write us for details

GENERAL FILTERS, INC.
9001 Alpine Ave. Detroit, Mich.



Series 900 WALKER Hydraulic Jacks

Give you extra value features for car, truck or bus equipment and heavy duty bench work or shop jobs. One of ten sizes—capacities 1½ to 20 tons—at left. Order from your jobber—and see the complete line of Walker Jacks for every service need.

WALKER MFG. CO.
Racine, Wisconsin

Sure-Weld Liquid

SURE-WELD is the name of a new liquid welding material that, it is claimed, will quickly and permanently seal cracked valve ports, cylinder blocks and water jackets. It is supplied in pints, quarts, half gallon and gallon containers.

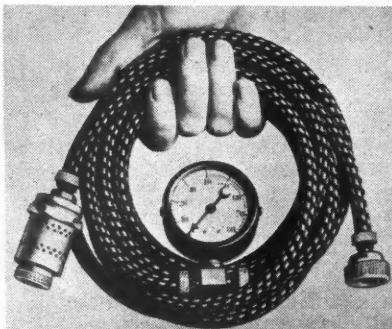


After placing Sure-Weld in the cooling system of the automobile the motor is run idle for about 15 minutes. At the end of this period the crack or cracks are permanently sealed.

The product is manufactured by Sure-Rite Products Co. Andrews and Cedar Park Aves., Philadelphia.

Enginair for Air

G. H. MEISER CO., 327 Marquette Rd., Chicago, Ill., is manufacturing the Enginair, a device for inserting in the engine in place of a spark plug for the purpose of inflating tires. They can be had in four



sizes for fitting the various size spark plug openings and they come with and without gages fitted into the air line. The company guarantees that only clean air is pumped. As high as 80 lb. pressure can be obtained with the device. Twelve feet of hose is standard.

Wilco Ring Compressor

A **PISTON-RING** compressing outfit which is most satisfactory for handling all types of installations has been added by Wilken-Mfg. Co.

The equipment consists of a series of sleeves of different sizes and a clamp. It is being marketed under the name Wilco Q-Plex Piston Ring Compressor.

Compression of the rings is at exactly the right point—over the piston ring area. After compressing the rings the right

*By ANY Standard
of Comparison...*

THE YEAR'S OUTSTANDING ALL-WHEEL-DRIVE TRUCKS

Write for New 1937 Literature,
Specifications and Prices

Marmion-Herrington Company, Inc., Indianapolis, Ind.

MARMION-HERRINGTON

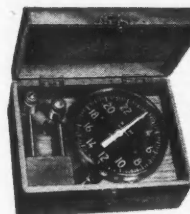
HANDY

World's Largest Manufacturer of

**GOVERNORS
AIR CLEANERS
OIL FILTERS
OIL CONDITIONERS**

HANDY GOVERNOR CORPN.
DETROIT

JONES PORTABLE TACHOMETER



The world's largest operators of commercial vehicles use Jones Portable Tachometers to check engine speeds, for tune-ups, and setting governors, etc. Here are a few: Standard Oil Co., of La., N. J., N. Y.; Shell Petroleum Co., Atlantic Refining Company, Tidewater

Oil Company, Keeshin Motor Express, Mack Trucks, Brockway, U. S. Navy.

Direct, instantaneous reading.

JONES - MOTROLA - NEW YORK
450 WHITLOCK AVENUE

INSUL-IZE

Restore the Efficiency of the Ignition System at Fraction of Replacement Cost



No. 323,507
Be Wise—Insul-ize

Red Insul seals high tension current, preventing current leakage.

Red Insul instantly starts motors stalled by water or moisture. An Insul-ized ignition system will not stall or fail to start in damp or wet weather.

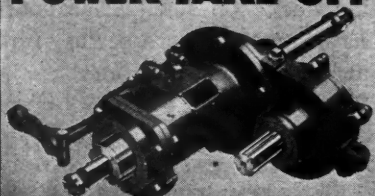
Let us send you full details.

INSUL PROD. CO.
521 FIFTH AVE.
NEW YORK, N. Y.

**McCORD REFRIGERATION
—FUEL SYSTEM
FOR TRUCKS
REFRIGERATION
AT NO COST
—BY THE FUEL
THAT RUNS THE MOTOR**

McCORD RADIATOR AND MFG. CO.
DETROIT

HERCULES SPLIT SHAFT POWER TAKE-OFF



for ANY TRUCK... ANY PORTABLE EQUIPMENT

Hercules Split-Shaft Power Take-Offs are not transmission take-offs. They are installed in the drive shaft to transmit all of the power of the truck motor direct to any portable equipment. Various models available to operate as direct drive or from the side.

Consult Hercules Engineers with your Power Take-Off requirements.

HERCULES STEEL PRODUCTS CO.
GALION, OHIO, U. S. A.

ALSO MANUFACTURERS OF DUMP BODIES AND HOISTS



—the trucks that are
"BUILT TO MEET
A CONDITION"

THE **HUG** COMPANY
Highland • Illinois

BACKED BY HALF A CENTURY OF GLASS MAKING

Insist on Duplate Safety Glass when you buy new equipment. And for replacement of glass in present equipment, call your nearest Duplate Dealer, listed in the "Where To Buy It" section of your telephone book.

Duplate

Plant PITTSBURGH *Glass*
PLATE GLASS COMPANY

EVANS VENTILATING AND HEATING SYSTEMS

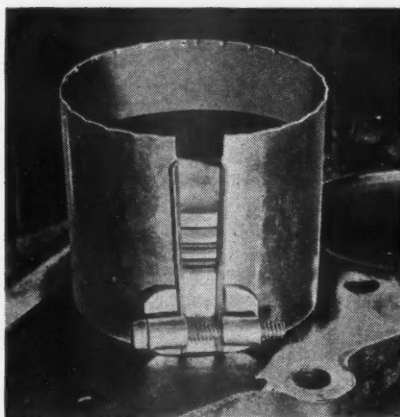
Are Better Engineered
Better Manufactured
and Priced Right

EVANS PRODUCTS COMPANY
UNION GUARDIAN BLDG.
DETROIT, MICHIGAN

COMMERCIAL CAR JOURNAL
MARCH, 1937

amount, the compression clamp can be moved along the sleeve to the edge of the cylinder, assuring the correct compression of the rings at the point where they enter the cylinder.

The compressors are packaged in sets

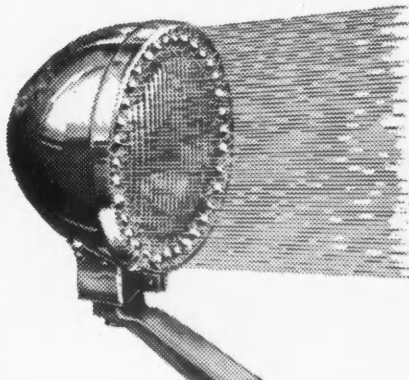


for the most popular range of diameters. For Buicks with the crescent-shaped bevel around the cylinder edge there is a set of special sleeves with the sides beveled to fit. For Studebakers there is also a special sleeve.

A complete set of six sleeves and one clamp sells for \$2.75.

Fog Light

THE unusual feature of a new type fog light is a ring of small reflecting lenses entirely surrounding the rim of the light, said to reflect the light from an approach-



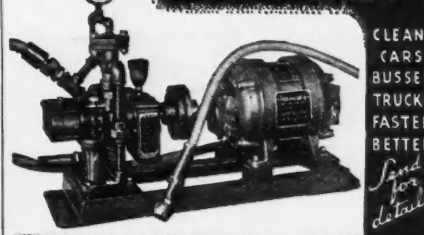
ing car at a distance of from 600 to 1000 feet. The light lens is amber for fog-penetration and a 50 c.p. single-contact bulb is used. Persons-Majestic Mfg. Co., Worcester, Mass.

Balcrank Lubricators

THE Balcrank AC-30 high-pressure lubricator is a portable, high pressure lubricant dispenser with a capacity of 30 lb. that will handle any type lubricant and develop sufficient pressure to service all fittings. The Balcrank is suited for use by truck operators, bus lines, fleet owners, etc. Lubricator weighs but 26 lb. and develops 5000 lb. per sq. in. with 1/2 lb. delivery to every 50 strokes.

The model 150 Balcrank spring lubricator will permit efficient lubrication of 1937 Ford springs. It handles any type fluid.

SPEED WASHING IS HAD ONLY WITH ROTAWASHER



CLEANS
CARS
BUSES
TRUCKS
FASTER
BETTER

Send for details

And speedwashing is the new, advanced cleaning method that fleet operators, as well as garage and wash rack owners everywhere are inquiring about. Its record of sharply cut maintenance costs for fleet owners is amazing—its record of greater profits for garage and wash rack owners is too big to overlook. Investigate Speedwashing at once!

New Folder just off the press—
THE Write for it today!

ROTAWASHER
CORP.
Dept. CC, 118 E. St. Clair Ave.
CLEVELAND, OHIO

ARMORPLY

● A metal faced plywood panel of high quality for building better panel bodies.

Armorply is the lightest panel of its type available. It is faced with rust resisting galvanized steel, and has a hard birch back.

Write for samples, prices and full information.



U.S. PLYWOOD

UNITED STATES PLYWOOD CO.

103 Park Avenue New York, N. Y.

SURE-FIRE POWER

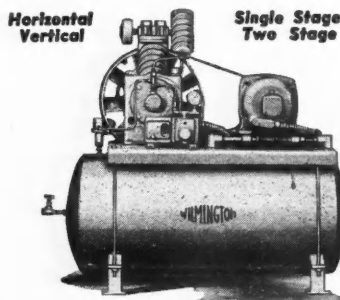


A sure-enough light-heavy, this Blackhawk AA8.5! 4 1/2 ton capacity. 8 1/2" low, 17 1/2" high. Handles any truck in intermediate class. Fast, reliable, with smooth, EASY lifting—like all Blackhawk Hydraulic Jacks. Ask your Jobber Salesman. Write for literature.

BLACKHAWK MFG. CO.
Dept. CJ-3, Milwaukee, Wis.

BLACKHAWK

WILMINGTON COMPRESSORS



"FREE" Air? Practically!

Low maintenance costs—so low your air is practically free except for power charges—is the reason you should own a Wilmington. The non-pulsating check valve lasts years longer than pressure operated types. The motor can't burn out from starting overloads. Air is cleaned to reduce wear, de-oiled to protect tires and hose. Timken bearings. Highest quality throughout, but priced in line. Send for catalog.

The Auto Compressor Co.
S. Mulberry St., Wilmington, Ohio

NEW ALCO 4-WHEEL DRIVE

For Ford and Chevrolet trucks offers revolutionary performance features never before found—a light, fast all-wheel-drive that piles up profits for the hauler on hard runs.

For Information Write or Wire

ALMA MOTOR COMPANY
884 Penobscot Bldg.
DETROIT, MICH.

Route Sales Management*

The good route sales manager must have a capacity for organization, planning, selection and training of sales power, sales promotion, etc. To these qualities must be added the willingness to exchange ideas with others and make use of that information at the right time.

This exchange of ideas by route sales managers of bakeries, laundries, bottlers, ice companies, food firms and service industries is most desirable but has not always been possible heretofore. Now Fred DeArmond and George N. Graf, both students of the problems of route sales management, have compiled in one book the cream of the experience of men who have spent their lives over sales and delivery problems. To the manager whose problem it is to organize, train driver-salesmen and plan sales and to the operator in charge of truck equipment this book is recommended for the helpful information it contains, for its ideas and for its many practical recommendations on good truck operation and route selling.

* Published by Route Sales Publications, McGraw-Hill Building, New York City, 312 pages, 50 charts. \$4.

NEWS

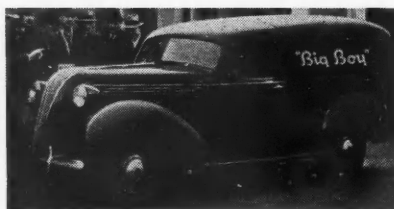
(CONTINUED FROM PAGE 54)

president in charge of engineering of Thompson Products, Inc.

D. D. Robertson, chief engineer of Wilkening Mfg. Co., has joined the Spicer Mfg. Co., Toledo, to do sales engineering work.

Paul E. Friend has been appointed chief engineer of Wilkening Mfg. Co., succeeding D. D. Robertson.

W. W. Schenck has been reelected president of Alma Motor Co., Detroit. E. R. Labadie and Oscar Gauthier were elected to the board of directors.



Sales executives of Hudson Motor Car Co. inspect the first of the new Terraplane "Big Boy" commercial cars. The car pictured here is a panel delivery, 3/4-ton model and is built on a 124-in. wheelbase, and has 96 hp., with 102 hp. available at a slight additional cost

Legislative

Florida's law restricting the gross weight of interstate trucks to 20,000 lb. has been taken to a Federal court. Action was brought by Acme Freight Lines, Inc., of Jacksonville. The law was attacked on the ground that it discriminated against for-hire carriers inasmuch as private carriers were permitted a gross load of 34,000 lb.

Truck and water carriers are opposing the Pettengill Bill to repeal the long-and-short haul clause of the Interstate Commerce Act. At a recent appearance before the House Interstate and Foreign Commerce Committee operators claimed repeal of the clause would free railroads from regulation and leave the way open for them to drive other forms of transportation out of business.

Truck Depot Financing

Will design, erect and finance truck depots, garages, and loading docks, on suitable locations. Estimates and prospectus furnished without obligation.

W. J. KEHL
1225 N. Maplewood Ave.
CHICAGO, ILL.
Phone: Brunswick 1580

A proposal for classification of motor carriers and brokers has been issued by the Bureau of Motor Carriers. It defines and segregates the various operations performed by truckers, and divides common and contract carriers into regular and irregular route operators. These classes are further divided into haulers of general commodities and special commodities. In addition there is a breakdown of local cartage and over-the-road classes of which there are 16 in the latter group.

Clayton W. Butterfield has been appointed advertising and merchandising manager of Bendix Products Corp. succeeding Neal Taylor Hall.

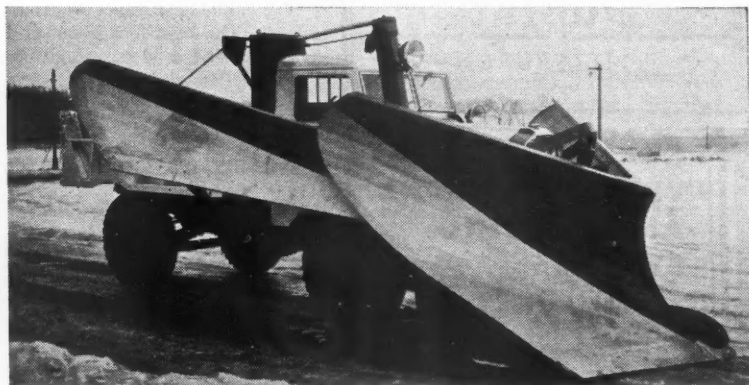
N. B. Gilliland has joined the sales engineering staff of the Detroit office of Lincoln Electric Co.

Contest

To stimulate intensive study of arc welding, \$200,000 will be distributed by The James F. Lincoln Arc Welding Foundation among winners of 446 separate prizes for papers dealing with this subject in 11 major divisions of industry, including Automotive.

The principal prize winner will receive not less than \$13,700. Other prizes range from \$7,500 to \$100, the latter sum to be awarded each of 178 contestants whose papers get honorable mention.

Analysis of the complete prize offering shows the following in the Automotive field: 24 prizes with a total value of



Walter four-point positive drive truck equipped with V-type snow plow and wing plows ready for heavy-duty work in the snow belt states. The spring-mounted center scraper in the middle of the truck aids in clearing snow and ice right down to the road

COMMERCIAL CAR JOURNAL
MARCH, 1937

THORNTON

Dual Ratio Four Rear Wheel

DRIVE FOR TRUCKS!

Is setting new records!

THORNTON TANDEM CO.
Detroit

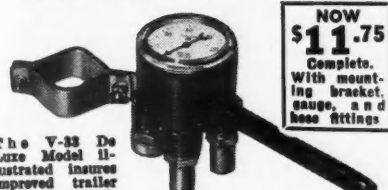
For running-in new and rebuilt engines use auxiliary lubricants containing "dag"* Brand colloidal graphite.

Acheson Colloids Corporation

Port Huron  Michigan

*REG. U. S. PAT. OFF.

THIS IS THE NEW VEL-VAC HAND CONTROL VALVE



The V-33 De Luxe Model illustrated insures improved trailer brake control, calibrated braking progression, instantaneous application and release, hair trigger action matched with dependability. Write today for new Vel-Vac Manual on Power Brakes and accessories. It's free.

VACUUM POWER EQUIPMENT CO.
1646 W. Lafayette Blvd., Detroit, Mich.

TRUCKS

CAN'T SKID

when drivers use

LINTERN SANDERS

Send for new Sander Booklet.

LINTERN CORPORATION

7960 Lorain Ave.
Cleveland, Ohio

COMMERCIAL CAR

JOURNAL

Is the Leading Publication
in the TRUCK FLEET Field

COMMERCIAL CAR JOURNAL
MARCH, 1937

\$14,200. These to be awarded papers submitted under four sub-classifications; namely, Engines, Bodies, Frames and Trailers.

For the Commercial Welding division, 14 prizes worth a total of \$10,500 are set up. The two sub-classifications established are Job Shops and Garages.

Contestants must have papers in duplicate on file with the Secretary of the Foundation, at Cleveland, Ohio, not later than June 1, 1938. Prospective entrants should communicate promptly with Foundation Secretary A. F. Davis, P. O. Box 5728, Cleveland, Ohio, for complete details of the rules and conditions covering awards.

Litigation

The Thornton-Tandem Co., Detroit, has gained a decision against the Gear Grinding Machine Co., which was charged with infringing on a Thornton patent covering a tandem rear drive axle unit. An injunction is now in force against further infringements against the patent although the injunction has been modified to permit Grico to provide service for the infringing units now in the field.

Associations

Organization of the National Freightways System, a network of independent truck lines operating at present throughout the East, has been affected. Fourteen truck lines have become associated and plans are under way to allot memberships to a sufficient number of companies so that a complete nation-wide service connecting more than 50 terminal points will be possible shortly.

The name of the National Association of Lubricating Grease Mfgs., Inc., Cleveland, has been changed to National Lubricating Grease Institute.

The Motor Transportation Association of South Carolina has elected J. G. Caley, of Greenville, as president.

Expansions

The B. F. Goodrich Co. has acquired the plant of the Acme Motor Truck Co., at Cadillac, Mich. Floor space is 100,000 sq. ft. Acquisition of the plant is in line with the move to decentralize Goodrich operations.

The Lincoln Electric Co., Cleveland, has acquired new offices for its Cincinnati branch at Room 602, American Building, Central Parkway and Walnut St.

Hi-Jacking

The Chicago Association of Commerce working in conjunction with the police made such progress against hi-jacking of merchandise loaded trucks during 1935 that such losses dropped from \$500,000 to \$16,000 in one year. At the same time actual truck piracies were reduced by 62 per cent. Credit for Chicago's record goes to the Chicago Association of Commerce cartage theft committee, a body made up of representatives of the city's best known merchants and shippers.

Specify MILEY Brake Lining

Nine types that not only assure the correct friction but the correct structure and best braking material for each brake.



MILEY BLACK GOLD is the only metal base lining. Dense as cast iron, it is the best for Bendix, Lockheed, Steeldraulic, and Huck brakes—for all "depression year" mechanisms and others that compensate for lack of drum area with extreme operating pressure.

MILEY EBONITE Heavy Duty, a new zinc wire, synthetic resin, semi-moulded, that comes in rolls, sets, and on Miley Ready Lined Brake Shoes. Strictly heavy duty lining—that gives 2 wheel brakes 4 wheel power and steps up 4 wheel brakes to power-brake performance. The best lining for Fords, Heavy Trucks and External Brakes.



Write for
Samples and
Data Book

L. J. MILEY CO., Inc.
1470 S. Michigan Ave.
CHICAGO, U. S. A.

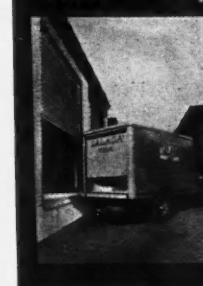
NEW OIL FILTER Saves \$200 per Year per TRUCK

The Horton Motor Lines reports a saving of \$200 a year in oil costs on their truck No. 178, equipped with a Briggs Oil Clarifier since the start of its service. The truck covered 110,724 miles in one year, consumed 439 quarts of oil, and no oil changes were made. This represents a saving of \$20,000 on a fleet of 100 trucks.

Multiply this \$200 figure by the number of trucks YOU operate. The lowered oil costs alone . . . to say nothing of reduced wear and maintenance . . . are amazing.

For complete details, write
THE BRIGGS CLARIFIER COMPANY
3262 K Street, N. W. Washington, D. C.

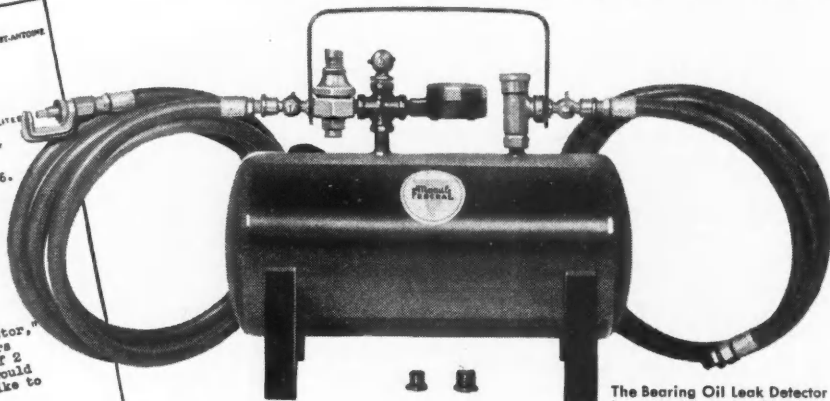
KINNEAR TRUCK DOORS Also Doors for Buildings



ALL METAL . . .
. . . . Coils like a window-shade, out of the way
**CONVENIENT
BURGLAR PROOF
FIRE PROOF
MORE DURABLE**
Write for Details
KINNEAR
Manufacturing Company
2100-20 FIELDS AVE.
COLUMBUS, OHIO

BEARING OIL LEAK DETECTOR

Quickly gives you the FACTS on any Oil Control job before you start work . . . It eliminates guesswork, saves time and money!



The Bearing Oil Leak Detector is a portable unit, with which any mechanic can quickly and with scientific accuracy test any full-pressure lubricating system

WORN BEARINGS *Cause* OIL PUMPING

When you have to correct oil pumping, always check the engine bearings! They are a principal cause of excessive oil consumption, power loss, poor performance, high operating cost. New oil rings installed with worn bearings are soon "coked up" and rendered ineffective because of excessive throw-off from the bearings. When you find worn bearings, replace with Federal-Mogul insert precision-type bearings or with rods babbitted by Federal-Mogul. They are engineered for the job of oil control.

No wonder hundreds of Bearing Oil Leak Detectors are now in use—it saves time on every overhaul and oil control job, and prevents delivery of a partially defective overhaul. The Detector quickly pre-tests all oil pumpers and overhaul jobs, so that you know before you start what hidden defects in engine bearings, oil headers and oil lines must be corrected—and you can make this test *simply by dropping the oil pan*. It shows how important it is to do a complete job of oil control. Also used to check up finished jobs before the delivery. One shop discovered defective cam bearings on a finished truck overhaul in a few minutes with the Detector, after experts had spent days trying to find the trouble! You, too, can save time and money using the new Federal-Mogul Bearing Oil Leak Detector. Light weight, easy to use, low-priced. Ask your Federal-Mogul jobber or send coupon direct to us for full details and price.

Write today!

FEDERAL-MOGUL CORP.
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Send me full details and price on Bearing Oil Leak Detector.

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